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Table of Contents

Locomotives of the Chicago & North-Western Ry.	6
Railroad Fans	7
Great Wits	7
The New "Century"	8
Christmas is Coming	10
The Railroad Mania in Amherst	11
Messrs. Harrison, Winans & Eastwick	46
The Lackawanna and Bloomsburg Railroad	54
The Muddle of the Gauges	59
Lehigh and Hudson River Railroad	67
The Sterling Iron and Railway Co.	75
Locomotives of the New Haven R. R.	79
History of the Northern New York Railroad	90
A Pen Picture	99
Worth Reading	106
New Books	109
An Early Passenger Coach	111
In Memoriam	115

Fisher
11-20-39

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A couple of years ago your Editor was in need of information relative to the locomotives that ran on the early Amherst, Belchertown & Palmer R. R. and invoked the aid of Prof. R. C. Overton of Amherst College to make a search in the Court records at Northampton to locate a certain inventory of their equipment. Prof. Overton at that time was teaching American History and he went your Editor one better. Always alert for new assignments to his students on matters pertaining to Amherst and its vicinity, he selected the road as a project for one of his Seniors. The experiment was a success but there was a feeling that lack of time prevented the student from consulting further source material and the subject was again assigned to a Junior, who happened to be one of our members, using the original paper as a base. The work of Mr. David W. Sargent, Jr. is reproduced in its complete form, there has been no reduction in the amount of material as written by this young man. I want every member who reads his contribution to realize that it is the work of one of our younger members, a man who was in his junior year at college, that he accepted a difficult assignment about which but very little was known and that called for a great deal of time spent

in research work but he has completed a paper which Prof. Overton had no hesitancy in submitting for publication and which your Editor is proud to reproduce.

Another, submitted by Mr. Norvin H. Green on the Sterling Mountain Ry., deserves our attention. Mr. Green has briefly but carefully stated the facts of this little industrial road, one of many in Northern New Jersey, the history of which we are glad to record. Time is rapidly removing not only the traces but the records and data of these early roads but what a fine thing it would be if the members of our New York Chapter would take it upon themselves to dip into and write up in just this fashion some of these small and lesser known roads. To Mr. Green, we extend our appreciation for his efforts, to Mr. Sargent we congratulate him for producing such a noteworthy paper and to Prof. Overton we commend your example to the faculty of our various institutions of learning in that if their students will leave the beaten track of time worn subjects and undertake something of local interest, they will be adding vastly to the store of information.

Although it is not the policy of producing papers covering the excursions of our Chapters your Editor has not hesitated in reproducing an account of the Fort Bragg trip enjoyed by our Pacific Coast members last spring. Mr. Joslin has by means of his pen and his pictures, skillfully painted an accurate portrayal of this trip—one that all of us will be sure to enjoy.

We welcome a new member to our columns—Mr. Linwood Moody who has told us much relative to the different railroad gauges. We commend the efforts of Messrs. Graham and Pennoyer for their contributions and we are again indebted to our good friend—Captain Robinson for another railroad sketch. So, if any of our members feel that these contributors deserve a word of praise, they will never know it unless you write them and if any of you feel inclined to tackle some of the short lines in your vicinity, it will never be done unless you make the effort.

Locomotives of the Chicago & North-Western Ry.

Immediately following this publication will appear an extra bulletin entitled—"The Locomotives of the Chicago & North-Western Ry." This material will be in the form that was used in our previous publication on the Chicago, Burlington & Quincy R. R., save that it will be complete in one publication. There will be a brief introduction which will serve as an outline for the growth and development of the road. This will be followed by a complete list of locomotives of the C & N-W and its subsidiaries but will not include the C. St. P. M. & O. Ry., as that is a separately operated road. We are sure this check list of locomotives will be of interest to our members. This extra bulletin will not be included with those furnished our Annual Members but at the time of publication an announcement of its appearance will be mailed you.

Railroad Fans

One sometimes wonders what the old time railroad official in either the operating or mechanical department thinks when the passenger department announces that on a certain date a couple of hundred men, young and old, will visit their facilities and to have the engines all shined up and lined up so that pictures can be taken of them! Looking backwards nearly thirty years, when the few hardy souls braved the wrath and ire of the various M. M's. and Roundhouse Foreman in order to get a picture of a locomotive of a certain class, no matter where the "crittur" stood or the light either—time has wrought many changes. The writer recalls the remark made by one foreman to his superior when the former did not know he was within earshot—when asked who the chap was with the camera, the reply was—"Oh some young nut who wanted to take some pictures of our engines!" Twenty years later, the management of this same road, when attempting to arrange an album of pictures showing the different classes of locomotives on that road was only too glad to have the assistance of this same "nut"—one of the founders of this Society. One thing he can say, perhaps it was the few pictures or the cigar or both that he passed out to the official in charge, he generally met with unfailing courtesy and was never asked to leave the railroad property. No doubt others who pioneered in this game can say as much, though, no doubt, some of the officials regarded us as a bit queer.

Through the kindness of William H. Schmidt, Jr., Chairman of the Publicity Committee of our New York Chapter, I have received an editorial that appeared in the "*Railway Gazette*" under date of April 15, 1938. Let all who read it take heart for even that staid English journal recognizes the worth of an enthusiast.

"Great Wits"

"We see that a contemporary has lately inquired whether railway enthusiasts are mad (putting it as bluntly as that). To us it is a constant sorrow that the enthusiast's absorption is so commonly ascribed to defective mental powers in other directions, rather than to the lofty grandeur of his chosen subject. Only the boldest intellect, we feel, would embark upon the many-sided study of railways. Once the plunge has been taken, the subsequent dedication of the mind to a single theme is far from striking us as deserving of contempt, but increases our respect. Enthusiasts not only persist, but seem to multiply, from which we hope it is not an important deduction that a proportion of them find time to become husbands and fathers. Considering the thought and trouble lavished by many merely upon qualifying for these offices, let alone assuming their responsibilities, the casual ease with which the railway enthusiast must conduct his matrimonial transactions in the intervals of pursuing an elusive tank engine from shed to shed is a tribute to his personal magnetism. If it is true that great wits to madness oft are near allied, the railway enthusiast strikes us as the exception proving the rule."—*Railway Gazette*, Apr. 15, 1938.

The New "Century"

209
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This is not an article on the new motive power and equipment placed in service last June on that splendid train—the newspapers and technical journals have already done that. Our members, however, may be interested to learn that the management of the New York Central System has paid a tribute to the steam locomotive in a series of sketches depicting some of the more famous locomotives of the roads making up the present system. These sketches number sixteen and are as follows:

Mohawk & Hudson R. R. "Experiment." Built by the West Point Foundry in 1832, the first engine in this country to have a leading four wheel or bogie truck, the design of John B. Jervis.

Mad River & Lake Erie R. R. "Sandusky." Built by Rogers, Ketchum & Grosvenor in 1837. Although originally built for the New Jersey R. R. & Transportation Co., the engine was sent west. Built for a 4' 10" gauge road, the Mad River & Lake Erie, then building, adopted the same gauge and this in turn was later adopted by the railroads in Ohio. The first locomotive to have a whistle and subsequently, a law was passed in Ohio compelling all locomotives to be thus equipped.

Tonawanda R. R. "Batavia." Built by Rogers, Ketchum & Grosvenor in 1838. Built with the driving wheels behind the firebox and equipped with a device to throw part of the weight of the tender to the driving wheels.

Hudson River R. R. "Champlain." Built by the Taunton Locomotive Works in 1849. One of the early engines that helped make some of the speedy runs for which this road was noted.

Utica & Schenectady R. R. "Lightning." Built by Edward S. Norris at Schenectady, N. Y. in 1849. This engine with its 84" drivers was an early attempt at high speed. It is said to have hauled a train of eight cars sixteen miles, 88 feet in thirteen minutes and 21 seconds. Notwithstanding that, the locomotive was not continued in service after one year.

Western (Mass.) R. R. "Addison Gilmore." Built by Wilson Eddy, M. M. of the Springfield Shops. This locomotive took the first prize in the famous Lowell trials—October 1, 1851.

Michigan Southern & Northern Indiana R. R. "Governor Marcy." Built by the Schenectady Locomotive Works in 1851. A famous passenger engine on one of the subsidiaries of the old Lake Shore & Michigan Southern R. R.

Hudson River R. R. "Irvington." Built by Breeze & Kneeland in 1852. The first coal burning locomotive used on this road and the forerunner of the mighty host of coal burning locomotives.

Boston & Worcester R. R. "Brookline." Originally built as the "Lion" by Edward Bury of Liverpool, England, in 1836, the engine was rebuilt by the road in 1853 and was a familiar sight in later years under the name "Brookline" serving on the commuter trains on the Brookline branch. This old veteran ran over 700,000 miles, probably more than any other locomotive of her time.

Buffalo & State Line R. R. "Vulcan." Built by Rogers, Ketchum & Grosvenor in 1854. An early freight locomotive with only six pairs of drivers that played an important part on that road south of Lake Erie.

New York Central R. R. "Empire State." Built by New Jersey Locomotive & Machine Co. in 1854. A beautiful example of an early wood burning type of passenger locomotive bearing a name that has always been associated with this road.

New York Central R. R. "President." Built by the Schenectady Locomotive Works in 1855. This ten-wheeler, in service between Albany and Schenectady, is an outstanding example of the work of Mr. Walter McQueen.

Boston & Worcester R. R. "Despatch." Built by the Boston & Worcester R. R. in 1858. In 1860, when the Prince of Wales visited this country, this engine, temporarily named "Prince of Wales" pulled the special train from Worcester to Boston. A steam calliope had been fitted to the engine and, as the train approached Boston, the tune—"God Save the King" was played. Needless to say if anything of the sort was attempted in these modern times, certain photographers in Newton, Cambridge and other points, would be alongside the right of way to record the event.

Hudson River R. R. "Constitution." Built by Schenectady Locomotive Works in 1860. Turn back to troublesome times in this country during the fifties and that will account why Mr. Samuel Sloan, President of the Hudson River R. R. and a staunch advocate of the Federal Union named these two new locomotives—"Constitution" and "Union." Both were assigned a fast passenger train, the forerunner of the "Fast Mail." They were destined to play another important role for the Poughkeepsie Daily Eagle under date of Wednesday, Feb. 20, 1861 states:

"At last the 'Union' appeared with the anxiously expected train and as it rolled grandly down the track cheer after cheer went up for 'Honest Old Abe.'"

"The locomotive 'Constitution' which was to take the train to New York was brought up where Mr. Lincoln could see it. It was beautifully decorated with the American colors and had a lithograph portrait of 'Old Abe' on each side of the cab. Wm. Buchanan, Master Mechanic of the road was engineer and John Burdick fireman."

Thus these gaily decorated locomotives hauled President-elect Lincoln to New York but they also were assigned the mournful duty of handling his funeral train four years later.

Lake Shore & Michigan Southern R. R. "Saxon." Built by William Mason in 1872. One of a fine fleet that Mr. Mason furnished this road and perhaps the fastest of the fleet, for, in 1883, this locomotive hauled the "Fast Mail" between Toledo and Elkhart making a record run that was not broken until 1895.

New York Central & Hudson River R. R. "William H. Vanderbilt". Built by Wm. Buchanan, Master Mechanic of the Hudson River R. R.

in 1880. This locomotive, named for the son of the founder, Commodore Cornelius Vanderbilt, a name that will always be associated with the New York Central System, was the first locomotive on this road to be equipped with that wonderful life saving device—the air brake. It was a sturdy representative of the American type locomotive of the eighties.

These sixteen sketches together with models of the famous “De Witt Clinton” and #999 represent the tribute the management of the New York Central System have paid to the steam locomotive in that they have been included in the design of the new equipment of the “Twentieth Century Limited.” We are sure our members will be interested and appreciate the honor thus accorded the “Iron Horse.”

Christmas is Coming

Sometimes you don't quite know what to get the other fellow for Christmas or sometimes you feel that a hint thrown out to the Missus may bring what you want. At any rate, here are some suggestions.

The Society still has a number of sets of the Pennoyer prints. This handsomely colored set of prints depicts accurately some of our early locomotives in their proper setting. It includes “Snow Bound”—A Crampton type of locomotive used on the Camden & Amboy R. R. in the fifties, with her nose in a snow bank; the “Pioneer” on the Cumberland Valley R. R., built by Seth Wilmarth of Boston, in 1851; a Rogers locomotive drawing an express train of the seventies and, through the courtesy of the Delaware & Hudson R. R., we can include the “Stourbridge Lion”, first locomotive in America and imported in 1829. The size of the “Pioneer” is 7x11”—the other three 8¼x10½” and does not include the broad white margins. The price of this handsomely colored set of four prints is \$5.00.

“The Formation of the New England Railroad Systems” by Prof. George Pierce Baker of the Harvard Business School. As stated in Bulletin #44, this book treats of the inception and growth of our New England roads up to their present formation in 1900. This is the first time the history of all of our New England roads has been treated in one book and is well worth a place in your library. Price \$3.50.

Lastly, Messrs. G. P. Putnam's Sons announce a new book, the subject of which is Mr. Daniel Willard, President of the Baltimore & Ohio R. R., the author, Mr. Edward Hungerford. Neither Mr. Willard as a railroad executive nor Mr. Hungerford as an author need any introduction here. The book, which is bound to be of interest and value will be ready some time in November—price \$3.50.

Orders for any of the above three items can be placed with your Editor—Chas. E. Fisher, 51 Newbury St., Newton Centre, Mass.

The Railroad Mania In Amherst

**A CRITICAL STUDY OF THE
AMHERST & BELCHERTOWN RAILROAD**

By DAVID W. SARGENT, JR.

AMHERST COLLEGE

May 19, 1938

PREFACE

In the spring of 1937, John Swainbank, a senior at Amherst College, undertook an original investigation of the Amherst and Belchertown Railroad. His information was presented in a paper entitled "The Railroad Mania In Amherst", depicting the background and history of this little known line between Palmer and Amherst, Massachusetts. Much original material was uncovered by Mr. Swainbank and a valuable contribution made to local railroad history. Mr. Charles Fisher, President of the Railway and Locomotive Historical Society, and Mr. Richard C. Overton, instructor in American History at Amherst College, both felt, however, that there might possibly be more available material on the subject which Mr. Swainbank did not have time to find. Accordingly, this author has carried on the investigation of the A. & B. R. R.

The aim of this paper has been to make as complete as possible a written record of this typical, New England railroad enterprise, emphasizing the mania responsible for the road and the economic factors which accounted for its lack of success. The original material has been used as a basis for further research and all its sources checked to correct any possible errors. Primary sources of information have been few and the material therein rather scanty. I have attempted to assemble the somewhat fragmentary data and to create from it a consistent chronological and critical record of the railroad. Mr. Swainbank's work has made my task much easier and it seems appropriate to keep his original title in this paper.

DAVID W. SARGENT, JR.

CONTENTS

	PAGE
Map and Charts in The Text	16
Tables in The Appendix	37
 CHAPTER	
I The Railroad Reaches Amherst	11
Introduction	12
Economic Background	17
Physiographic Considerations	17
Forerunners of The A. & B.	18
The Coming of The Railroad	20
II The A. & B. In Operation	24
History of the A. & B. 1853-1864	24
Equipment and Rolling Stock	27
Financial History	29
III Conclusion and Evaluation	31
Mania Versus Economic Background	31
The A. & B. After 1864	36
Appendix	37
Bibliography	43

MAP AND CHARTS IN THE TEXT

Map-Route of The A. & B. and Territory Served by It	16
Population of The Region Served By The A. & B.	32
Value of Manufactured Products In Region Served By A. & B. Railroad	33
Value of Agricultural Products In Region Served By A. & B. Railroad	33
Value of Manufactured and Agricultural Products In Region Served by The A. & B. Compared With That of State of Massachusetts	34

TABLE IN THE APPENDIX

I Physical Characteristics of A. & B., 1857	37
II Roster of Locomotives—A. & B. R. R. and Old Locomotives of N. L. N. R. R.	38
III Traffic On The A. & B. 1853-1864	39
IV Time Tables of The A. & B. 1853, 1856	40
V Cost of Road 1854	41
VI Abstract of the Annual Reports of The A. & B. Railroad	42

CHAPTER I

THE RAILROAD REACHES AMHERST

Introduction

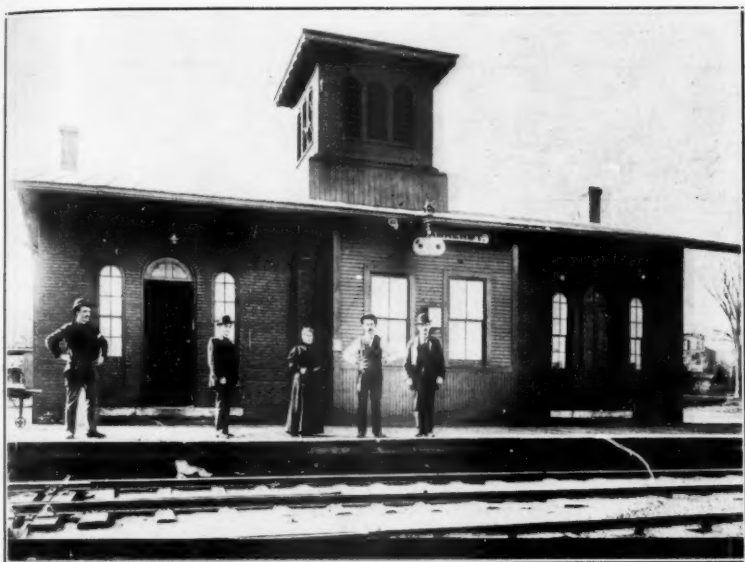
Speedy and dependable communication might well be called a slogan of the rapidly growing and expanding United States in the two decades prior to the Civil War. Once the practicability of steam locomotion had been proved in the early 1840s, the aim of every town was to secure for itself connections with its neighbors via the "iron horse". Thus it was hoped to stimulate local agriculture and industry, and to increase the town's prestige and maintain its reputation as a progressive community. Indeed, the early railroad building created tremendous enthusiasm which was soon pyramided and resulted in a virtual mania for rail communication which was spread over the entire country. Even the staid old Yankee stock of New England fell under the spell.

The construction of the Amherst and Belchertown Railroad furnishes one of the best examples of the local railroad mania which was so potent a factor in this period in this mushroom-like growth of the many small lines built in the section between the years 1845 and 1860. The purpose of this paper is to follow closely the history of this nineteen and a half mile line; to depict the general enthusiasm of the people which was largely responsible for its construction; to reveal the local and typically individualistic nature of the project; and lastly, to examine the economic and social conditions responsible for its financial failure.

Railroad fever reached a peak in the United States in the late 1840s and early 50s. Enthusiasm for railroads resulted in the construction of hundreds of lines which, although they gratified progressive spirits, all too frequently caused them financial headaches. As one historian has remarked, "Thousands of miles of railroads were built through regions too sparsely settled to afford local traffic and all was done on local capital."¹ With its well established cities, towns, and growing industries, New England was in a particularly receptive mood towards the time and money saving possibilities of rail transportation. The rapid increase in railroad trackage was in keeping with the temperature of the railroad fever so noticeable all over the East. From 1849 to 1852 mileage in the United States rose from 8,000 to 13,000 miles. Massachusetts was one of the leaders in this mania, for by 1854 it had 39 railroads operating 1,293 miles of track, and this mileage was exceeded in only five other states.² One example of this feeling in Massachusetts was the A. & B. project; it offers a sad example of a local "mania road," improperly financed, and built through a territory that was not economically fit to support it.

¹ McMaster, J. B. *History of the American People* VIII, 91.

² *Ibid* VIII, 95.



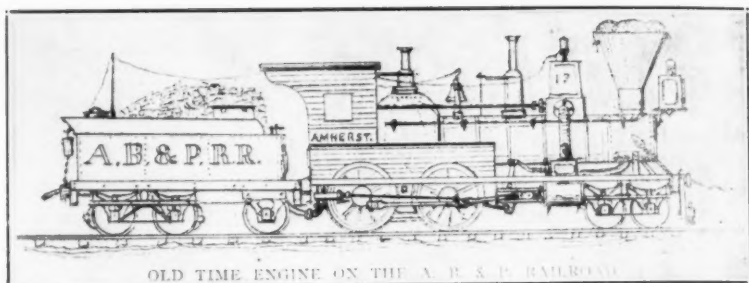
Courtesy of Jones Library, Amherst, Mass.

The A. B. & P. R. R. Station, Amherst, about 1895.



A Cold, Frosty Morning!

Courtesy of R. C. Brittin



Courtesy of R. C. Overton
Belchertown Station Today.



Courtesy of R. C. Overton
Original Palmer Station, 1938.

ECONOMIC BACKGROUND

A survey of the economic situation between 1845 and 1875 will serve as part of the conclusions accounting for the rise and fall of the line, but a few facts should be noted here. This region, which was expected to contribute to the building of the road and to furnish revenue to cover expenses, was neither well off economically nor well endowed by nature. The several towns in this area had no raw materials to encourage manufacturing or to furnish freight. Water power was not abundant and after the construction of the dam across the Connecticut River at Holyoke in 1850 motive power could be obtained much cheaper at that point.³ The region was sparsely settled, having only about 12,000 inhabitants in 1850,⁴ so that there was no concentrated demand for importation of manufactured articles by a railroad nor extensive manufacturing and agriculture, except for local needs. Agriculture, except in Shutesbury and Pelham, was fairly extensive but did not produce crops for outside consumption. Much of this economic backwardness can be explained by the topography and soil of the region.

PHYSIOGRAPHIC CONSIDERATIONS

The railroad as originally planned was to have its southern terminus at Palmer, where it would connect with the Western Railroad (now the Boston & Albany road) running east and west, and the New London, Willimantic & Palmer Railroad extending north and south between Palmer and New London on Long Island Sound. As shown on the accompanying map, (page 5) the line was to run north to Grout's Corner in Montague where connections would be made with the Vermont & Massachusetts Railroad (Now the Boston & Maine). The section from Amherst to Montague was not completed, however, until 1867, when control of the road had passed from local hands.⁵ The territory directly served by the A. & B., excluding the depot at Palmer, consisted only of Amherst and Belchertown. The townships of Granby, Pelham, Hadley, Leverett, Shutesbury and Sunderland were not touched by the line but can be considered to be partially within the territory which might contribute passengers and freight. As the map shows, these towns are all contiguous and lie between the Connecticut River on the west and the Eastern Upland, approximately 8 to 10 miles east of the river. This upland is quite hilly and rugged, thus effectually cutting off direct rail communication between this section and Worcester, and Boston. Rail connections with the eastern part of the state would, therefore, be forced to go either north to the Miller's River valley or south to the valley of the Chicopee River, which cut through the Eastern Upland. Within the small radius of the territory served by the line there are no rivers

³ Gabriel, R. H. *The Founding of Holyoke.*

⁴ See chart on page 32.

⁵ See page 36.

except for a few small and unimportant streams, so that water power for manufacturing is at a minimum.⁶

Hadley and Sunderland lie almost entirely within the lowest part of the valley cut by the Connecticut River and here the fields are flat and favored with rich loamy soil which supports thriving agriculture. The towns of Granby, Belchertown, Amherst and Leverett are situated on the higher slopes of the valley, where the land is fairly level and the soil of average quality but inferior to that of Hadley and Sunderland. Pelham and Shutesbury are out of the valley and lie in the uplands. Except for a square mile or two they are entirely above the 500 foot level and their topography is extremely rough and hilly. The soil is stony and thin and generally of a sub-marginal quality, so that agriculture has been decadent since 1800.⁷ The course of the railroad between Palmer and Amherst has a slight upgrade to the north, but the immediately surrounding area is not particularly hilly. For several miles the roadbed is flanked on both sides by extensive swamps. Except for the centers around the depots, population along the line was very scarce, because of the poor swampy soil.

FORERUNNERS OF THE A. & B.

The efforts of this locality to secure rail communication with the outer world is a story of enthusiasm and dogged persistence. Two attempts to establish rail connections were failures. Still the enthusiasm was not quenched and finally, after ten years of planning, failures, and renewed agitation, the third attempt, the A. & B. Railroad, established operations from Palmer to Amherst in 1853. While the first two projects were not completed, they were, nevertheless, manifestations of the persistent mania culminating in the A. & B., and are worth a brief resumé.

By 1840 one could travel from Boston to Springfield via the Western Railroad (now the Boston & Albany). This left Amherst, which may be considered the center of the local railroad spirit, only 20 miles from the greatly desired iron rails. Prospects were brightened when, in 1842, the Northampton and Springfield Railroad Corporation was chartered to build a line running from Springfield up the east side of the Connecticut River to a point near Mt. Holyoke, where it was to cross the river and proceed to Northampton.⁸ Prompt measures were taken to assure rail connections with the Northampton and Springfield for this section. Late in 1844 a convention of railroad enthusiasts met in Amherst and passed resolutions that a line should be built connecting the Vermont and Massachusetts Railroad at Montague and with the Northampton and Springfield near Mt. Holyoke. Temporary success crowned their efforts and the Hampshire and Franklin Railroad was chartered

⁶ Klimm, L. A. *The Relation Between Certain Population Changes and Certain Environment in Hampden, Hampshire and Franklin Counties, Massachusetts, 1790-1925.*

⁷ *Ibid.*

⁸ Carpenter and Morehouse *History of Amherst, Mass.* 309. More general information on the A. & B. and its forerunners will be taken from this source without further reference.

by the state February 1, 1845, for this purpose. The charter provided that capital stock was not to exceed \$600,000 and the road was to be completed in four years. Later in the year, however, railroad hopes received a severe jolt when the Northampton and Springfield changed its plans and crossed to the west side of the river at Willimansett, seven miles farther down stream. The people of Amherst and vicinity considered this act a breach of faith, but nevertheless determined to remedy the situation. They petitioned the General Court in March, 1846, for the formation of the Mt. Holyoke Railroad Company, whose tracks would fill in the seven mile gap. A charter was granted, allowing affiliation with the Hampshire and Franklin and three years for completion. The estimated cost for both sections was about \$430,000 and stock books were soon opened.

The local newspaper printed weekly in Amherst, the "Hampshire and Franklin Express," echoed the general enthusiasm and supported the project with all its editorial might. One editorial contended that the road would bring in new industries, and was sure to pay at least 6% on the investment.⁹ Within a week after the stock was put on sale, \$72,000 worth was taken in Amherst alone by over 200 individuals, which is a testimonial to the railroad fervor of this single town.¹⁰ A typical letter in the Express supporting the road urges the people on to greater efforts saying,

"They should never suffer the words 'we can't' to pass their lips, but go forward with the means in their power and thus by deeds and by words persuade others to come to their aid".¹¹

Earnest efforts to secure the needed capital in the surrounding communities proved unavailing. Enthusiasm was more plentiful than money and by 1848 it was apparent that sufficient funds could not be raised, so the directors of the now combined Mount Holyoke and Hampshire and Franklin Railroads acknowledged the fact and liquidated the company.

This inglorious ending of the first attempt at railroad connections put a damper temporarily on the railroad mania. But even its existence in a only corporate state had aroused interest of a permanent nature and the people more than ever felt the need of a railway, and soon they tried again. The second attempt was incorporated as the Amherst Branch Railroad Company in 1848, and according to its charter could build a line from Amherst connecting with the Connecticut River Railroad at Northampton. Once more men of Amherst were leading spirits and exerted great effort to make the project a reality. Its fate, nevertheless, was also like that of its predecessor and it never advanced beyond the charter stage for the simple but all-important reason that the necessary money was not forthcoming. Thus ended the first two efforts of Amherst and vicinity to construct a local railroad on local finances to connect this limited region with the main streams of commerce.

⁹ *Hampshire and Franklin Express*—May 14, 1846. Hereafter this paper will be referred to as the *Express*.

¹⁰ Carpenter and Morehouse *op. cit.* 311.

¹¹ *Express op. cit.* Feb. 4, 1847.

THE COMING OF THE RAILROAD

The events of the next few years were proof that railroad enthusiasm was still firmly embedded in the Yankee spirits of the region. Despite the two distinct failures, a railroad was still desired and still considered economically profitable. After the failure of the Amherst Branch Railroad project in 1848, not much seems to have been done concerning a third attempt until 1850. The people were merely biding their time until a favorable opportunity arose. This occasion was presented when the New London, Willimantic and Palmer Railroad completed its tracks to Palmer, September 20, 1850. Connections to the north and west had failed and the rugged hills directly to the east formed an effective barrier. The only solution seemed to lie in connections running south to Palmer and, if possible, continuing north to Montague. Herein lay Amherst's opportunity—one to which her citizens promptly applied their energies with vigor.

With this new opening at hand, measures were soon taken to charter the road. On May 24, 1851, the General Court incorporated Luke Sweetser, Ithamar Conkey, Edward Dickinson, Myron Lawrence and others, all local men, as the Amherst and Belchertown Railroad Company. They were empowered to construct a railroad from the depot of the New London, Willimantic and Palmer at Palmer by the most convenient route northerly through Belchertown, Amherst, Leverett and Sunderland to Montague, where connections could be made with the V. & M. Two years were allowed for locating and four years for construction of the road. Thus, by the charter, it was intended that the road should be a connecting route between two important lines of communication. Since the section between Amherst and Montague was not built until 1867, the A. & B. served merely as a feeder which helped contribute to its own downfall. Its failure to make the northern connection for 16 years left it a "dead end" line. The charter limited the capital of the road to \$600,000 which was to be issued in shares of \$100 each, with the provision that no shares could be sold for less than this stipulated value. Two precautionary measures were set forth in the charter to assure financial stability. Construction could not begin until the directors filed with the state evidence that at least 20% of the capital had been paid into the treasury. The second measure provided that the General Court might reduce the tolls within five years if the profits amounted to more than 10% of the capital stock, and in the face of the subsequent history, this proved to be an ironical joker.¹² The company was formally organized on June 30, 1851, and directors chosen who elected Luke Sweetser as president. Now that the company was organized, the next important step was to finance the undertaking.

The method consisted of opening subscription books to the public and then using every means to promote their sale. In glowing terms the railroad was pictured as being a great community enterprise in which all should share. Stock agents invited, urged, and entreated everyone to purchase stock to the limit of his means. To make buying as easy as

¹² *Massachusetts Special Laws 1849-54*, 378.

possible, it was sold on an easy payment plan, with the directors levying certain percentage assessments over a period of many months until the full value had been paid. Prestige and influence were lent to the cause by the voice of President Hitchcock of Amherst College. General James Palmer, an official of the N. L. W. & P., who had been engaged as the surveying engineer, also aroused enthusiasm with his unstinted oratorical support. The *Express* stimulated the prevailing ardor and offered vigorous backing in its editorials. Both the oral and written arguments advanced in favor of the project were of the same general nature; that the railroad would open new markets and promote the industrial and agricultural expansion of Amherst. Optimism was the only possible attitude and cooperation and persistence were the rallying words.

The following editorial appeared in the *Express* on August 15, 1851, and is a typical exhortation.

"The question is frequently asked,—shall we get this road? We should be glad to answer it affirmatively, but that is impossible. Each one must feel that it is depending on his exertions and that his subscription will secure the object. The boon so long desired is within our grasp. Shall we secure it by every man's taking hold of the matter as a thing in which he has an individual interest and responsibility? Or shall it fail and fail forever, and from our supineness? Let none hold back. You can be sure of a handsome percentage on your subscription, and we can but hope that every man will come forward to the extent of his means and help the matter on."

To answer the possible view of the skeptics that the road might not be a financial success, proponents claimed that even if the line never paid a dividend, it would be of great benefit to the vicinity in introducing new industries and increasing the value of real estate.

This public enthusiasm and support soon bore fruit in the form of encouraging stock sales. By August 21, 1851, citizens of Amherst had already subscribed \$50,000 worth of stock and subscriptions steadily mounted.¹⁴ At the first stockholders' meeting, February 6, 1852, about 400 persons were present and the directors announced that the whole amount needed to build the section from Palmer to Amherst had been subscribed. The contract for construction had been let to Willis and George Phelps of Springfield and work was immediately begun. A ground-breaking ceremony in Belchertown began actual construction on February 12, 1852. On this memorable occasion Reverend Colton of Amherst opened the ceremony with a prayer, after which the Belchertown brass band played; next President Hitchcock of Amherst made a short speech and removed the first shovelful of earth; then came more music, an address by Reverend Wolcott of Belchertown, followed by a finale consisting of a 20 gun salute. It was announced that the success of the project was attested by changing the name of the Logtown section of Belchertown, where the exercises took place, to Hopetown.¹⁵

The mania of the people for the coming of the railroad is well expressed by Emily Dickinson in a letter to her brother, written just after the contract for construction had been signed.

¹⁴ Carpenter and Morehouse, *op. cit.*, 316.

¹⁵ *Express op. cit.* Feb. 13, 1852.

"Since we have written you the great railroad decision has been made and there is great rejoicing throughout the town * * *. Everybody is wideawake, everything is stirring and the streets are full of people walking cheerily. Nobody believes it yet, it seems like a fairy tale, a most miraculous event in the lives of all of us. * * * why I verily believe that we shall fall down and worship the first son of "Erin" that comes and the first sod he turns will be preserved as an emblem of the struggle and victory of our fathers."¹⁶

Construction from Palmer to Amherst took a little less than a year and evidently proceeded with no trouble. The *Express* reported on November 26, 1852, that 100 passengers left for Palmer by train, but it was several months before the road was formally opened. The first freight train on the A. & B. reached Amherst April 5, 1853, loaded entirely with 30 tons of merchandise for a local store. Three freight cars were borrowed for the occasion from the Western Railroad and were drawn by the engine belonging to the contractors.¹⁷ The great day, a holiday for the whole town, came on May 8, when the first regular passenger train pulled into Amherst. A cheering throng, milling around the newly erected depot, and a 19 gun salute (it was 19 miles from Amherst to Palmer) greeted the arrival of this puffing engine which represented the accomplishment of Amherst's great ambition.¹⁸

Local enthusiasm was responsible for the road and this was doubtless due to the railroad mania which was prevalent in New England and the whole nation. It was a demonstration of local pride and a case of "keeping up with the Joneses." Of course business men of the community saw a chance for new markets and increased sales, but to the people as a whole it was a tangible expression of good times, progressive spirit and town prestige. There is no evidence to show that any careful planning was undertaken to ascertain whether finances and prospective revenue would justify building the line. It seemed certain, however, that once a line was built there would naturally be some use of its facilities and the backers simply took it for granted that there would be sufficient freight and passengers to pay the running expenses and amortize the debt.

Just how much the N. L. W. & P. influenced construction of the A. & B. is not known, but the former was certainly interested in having a feeder, and if its officials entertained any doubts concerning the financial success of the A. & B., they apparently did not divulge them to the local promoters. They, too, were probably under the spell of the mania and furthermore hoped to see the line extended north to meet the V. & M. The interest of the N. L. W. & P. was soon demonstrated in a definite manner, for this road asked permission of the Massachusetts legislature in 1852 to buy \$100,000 worth of stock in the A. & B. for the purpose of extending the latter to Montague.¹⁹ The officials of the local line were aware of this move and at the annual meeting of the stockholders February 2, 1853, the following resolution was passed;

¹⁶ Letter to William Austin Dickinson. M. D. Bianchi, *The life and Letters of Emily Dickinson*.

¹⁷ *Express op. cit.*, April 4, 1853.

¹⁸ *Ibid* May 13, 1853.

¹⁹ Carpenter and Morehouse *op. cit.*, 314.

"To accept the acts of the legislatures of Massachusetts and Connecticut authorizing the New London, Willimantic and Palmer Railroad Company to subscribe to the capital stock of the Amherst and Belchertown Railroad Company to the extent of \$100,000."²⁰

Along with the acceptance of this financial aid the directors signed a contract with the N. L. road to equip and run the A. & B. for a number of years on conditions favorable to both parties.²¹ Just what these conditions were is not shown in available records. For some reason which the records do not show, the N. L. very soon decided that its investment was not advantageous. Records of a meeting held March 16, 1853, state that, "The president was authorized to sell our stock in the Amherst road."²² The scarcity of records, particularly those of the A. & B., makes it impossible to ascertain the value of stock actually bought by the N. L. line. Since this purchase of stock was to be for the purpose of extending the A. & B. tracks north from Amherst, it is doubtful if it had any influence in the construction of the original section between Palmer and Amherst. Certainly the financing and most of the enthusiasm responsible for this section was of a purely local nature.

Only true community spirit under the influence of the railroad mania could have financed the line without the aid of outside capital. The cost of the road was \$290,000,^{22a} all of which was raised in Amherst and Belchertown and the immediate vicinity. The *Express* applauded this achievement saying, "The road does not depend on subscriptions from foreign capitalists but on local dependable citizens who have a personal interest in the road."²³ This statement would seem to support the contention that the N. L. W. & P. did not help to finance the Palmer-Amherst project. In keeping with this community spirit, apparently everyone dipped into his savings to share in the enterprise. In the *Express* for September 9, 1853, appears a list of stockholders whose holdings were being sold at auction because of delinquency in paying the assessments. The names on the list were all local citizens and the holdings were small; two had ten shares each, one had five shares, two had two shares, and ten had one share each.

Leadership in the affairs of the railroad company was intrusted to leading business men of the town who also had financial holdings in the corporation. Luke Sweetser, first president of the A. & B. and one of the town's most influential men, had been a leader in church activities, overseer of Amherst College grounds, and representative in the General Court. The first secretary and treasurer, John Adams, served as foreman of the local printing works. Ithamar Conkey served the road as a director and had gathered wide business experience as a lawyer, county commissioner, Judge of the probate court of Hampshire County, and representative to the General Court. Another important director was Edward Dickinson, who had served as treasurer of Amherst College,

²⁰ Letter of C. G. Woodward to D. W. Sargent, Jr. March 7, 1938. Mr. Woodward is a recognized authority on the history of the N. L. W. & P.

²¹ Carpenter and Morehouse *op. cit.*, 316.

²² Woodward to Sargent *loc. cit.*

^{22a} See page 41.

²³ *Express op. cit.*, Feb. 6, 1853.

representative to both state legislatures, and congressmen in Washington.²⁴ Amherst could well boast that in respect to both financing and management, the A. & B. was an independent and "home-town" affair. Although these officers were respected leaders in business, it is clear that the fortunes of the road had been put in the hands of men who knew relatively little concerning railroads and their problems. It must be remembered, also, that the coming of the railroad to Amherst was based on neither completely rational nor coolly calculated needs. Under the spell of the railroad mania, Amherst apparently took little thought of anything but obtaining rail connections. The leaders of the project had no former experience in this field and they must not be blamed for sharing and directing the general enthusiasm. In the light of modern experience, it seems quite amazing that this small community was able to finance and construct a railroad—it was a remarkable achievement.

CHAPTER II

THE A. & B. IN OPERATION

The history and technical data of the A. & B. are quite similar to that of other local roads of the period and these phases are very interesting to follow.

There is, unfortunately, very little material available to give a complete story of these two aspects. Practically the only source of information regarding incidents in the history of the road is the *Express*, and references in this weekly paper are disconnected and sketchy. Data on the road's technical features affords an extremely interesting field for investigation, but in this respect also, material is very scanty.

HISTORY OF THE A. & B. 1853-64

Directly after the triumphal arrival of the first passenger train in Amherst, May 8, 1853, regular service was inaugurated. Two trains ran each way daily between Amherst and Palmer. [Appendix IV contains two local time schedules with accompanying schedules for outside connections.²⁵] Time for the 19.5 mile run including stops at Dwight's, Belchertown and Three Rivers averaged about one hour. Controversy over the speed and schedules was ever present and adds a humorous touch. "The Palmer Journal" gently ridiculed the A. & B. for its failure to maintain schedules saying,

"A new passenger car has been put on the A. & B., but owing to a weak engine or some other cause the morning train from Amherst to Palmer frequently fails to connect with the Springfield-Boston train. The 'Montreal Line' must get up a little more steam."

²⁴ Carpenter and Morehouse *op. cit.*

²⁵ See page 40.

²⁶ *Express*, March 31, 1854.

The *Express* vehemently denied this statement, stating that due to repairs on the engine a smaller one had to be used for a short time and that the train missed connections only once or twice.²⁶ Further evidence, however, supports the contention of the "Palmer Journal," for even the local paper did poke fun at the speed of the engine. According to the *Express*, a North Amherst man missed the train at the station but managed to run down the A. & B. cars. The train had a start of a minute or two and was carrying the man's wife. This gentleman, determined not to be left behind, broke into a sprint and overtook the train "in the deep cut in Judge Dickinson's pasture"! With due respect to the railroad, it was noted that the engine at the head of the train was not one of the best of the company. "If the Vermont had been on instead of the Bates, the result with same start might have been somewhat different".²⁷

Failure to keep schedules because of the slowness of the engines was the exception rather than the rule, and the A. & B. was probably "on time" as often as any other road not blessed with an abundance of powerful locomotives. The road did greatly reduce the traveling time of passengers leaving and entering the vicinity of Amherst. Boston, 100 miles away, could now be reached in 3½ hours. Freight service was speeded up considerably and the A. & B. aided in delivering one shipment in Amherst 19½ hours after it had been ordered in New York City.²⁸

An interesting side line on the regular passenger service was the numerous special excursions sponsored by the road. A month after the opening a party of one hundred or more excursionists arrived in Amherst from New London. The *Express* tells us that townspeople escorted the group to the town hotel, where a sumptuous dinner was served in the visitors' honor, and that before leaving they were very courteously shown about the town by the students of Amherst College. The presence of Henry Ward Beecher warranted the running of a special train from Amherst to Belchertown so that a larger audience might hear him speak on "Patriotism". On other occasions special trains carried passengers to a political convention in Worcester, a horse show in Springfield, and to Commencement Week activities at Amherst College.²⁹

The rigors of winter were none too kind to the service which the road could offer. The usual schedule of two trains per day each way was maintained during the first two years, but the winter of 1855-56 seems to have been a severe one and deep snow halted all service several times. Accordingly, the company reduced the schedule to one train a day. The following years saw the schedule on its regular basis from spring to Fall, but reduced in the winters. Apparently the only blot on the safety record of the road can be blamed on winter snow. On January 25, 1862, a heavy snow storm made it impossible for the evening train to reach the Amherst depot. The engine left the single car and tried to push on but soon ran out of water and was forced to stop. The other

²⁷ *Express op. cit.*, July 2, 1857.

²⁸ *Ibid* May 20, 1853.

²⁹ *Express op. cit.*, June 17, 1853—March 23, 1855, Aug. 3, 1860.

engine had previously gone to Springfield for repairs and returned to Amherst during the night. The engineer did not see the abandoned car and ran into it, breaking in the end and somewhat injuring the engine. Damages were set at \$200 by the *Express* and service was held up for a week.³⁰

In spite of several aspersions cast relative to the slowness and irregularity of the trains and the impediments of the weather to the service, the road offered comparatively good passenger accommodations and carried as many as 23,000 passengers a year. The amount of freight carried, however, was disappointingly small and it was doubtless due to the lack of patronage in this department that the road was a financial failure. While carrying 23,000 passengers in 1854, freight transported in the same period amounted to only 9,000 tons.³¹ The paucity of freight is accounted for in two ways. The section had no large scale manufacturing or bulk farm products for outside consumption, nor was there a large demand for importation of these products. The second factor which was demonstrated clearly to the people was the very high rate on freight, or at least on express shipments. Compared with the freight volume, the express business was small, but should have been highly lucrative. It is not known just how much express business the road handled, but because of the abnormally high rates, it must have been quite meager. Indignation against these rates was voiced and one definite example given. One discontented individual declared that a package could be sent from Amherst to Boston via the roundabout route through Northampton for twenty-five cents, but to send the same package to Boston by the A. & B. cost thirty-eight cents.³²

The officials were aware of the disparity in rates and took definite steps to remedy the situation. The general agent, Mr. Dixey, journeyed to Springfield, where he discussed the need of reducing express rates between Amherst and Boston with officials of Thompson and Company, the express agents of the Western Railroad. It was decided to reduce the general rates 20-30% and after much haggling Mr. Dixey succeeded in obtaining for the A. & B. a three-fifths share of the through rates. This reduction went into effect in the latter part of 1858, but in a few days the rates were back at the old exorbitant level. After the general reduction had been announced, the A. & B. immediately raised their local rates on express between Amherst and Palmer. The express agents of the Western Railroad felt that the contract had been violated and so jacked up their charges. Thus came to naught the opportunity of increasing volume and income by means of reasonable express charges.³³ In 1863 the line ceased to operate its express business and leased this branch to Thompson and Company who were now acting as the New England division of the American Express Company.

³⁰ *Express op. cit.* Jan. 31, 1862.

³¹ See Appendix III, page 39.

³² *Express op. cit.* March 21, 1858.

³³ *Express op. cit.* Nov. 28 and Dec. 12, 1858.

EQUIPMENT AND ROLLING STOCK

The physical characteristics of the road, with the exception of the rolling stock, offer no difficulties. In Appendix I there is a complete table of these data.³⁴ One odd feature of the line is that with less than 20 miles of track there were nearly two miles of wooden bridges. This unusual length of bridges was necessitated by a large swamp. The travelling public was served by three regular depots located in Amherst, Belchertown and Palmer and three intermediate flag stations. According to the local ticket agent, the present station at Amherst is the original structure. It contains a typical small, dreary waiting room plus the ticket agent's office and a baggage room. Evidently the A. & B. did not possess extensive repair shops and, as noted above, sent its ailing locomotives to Springfield for repair.³⁵ Since the track came to a dead end at Amherst, there was at this point a turn table and probably a small shop, which are no longer standing.

It was announced at the first annual meeting of the stockholders that when the road was opened the N. L. W. & P. would equip and run it under a lease from the A. & B. Further details concerning this transaction do not seem to exist, but we do know that this agreement was kept for only a few months after the road began to operate. This arrangement was supposed to run for ten years and would have saved the A. & B. the direct expense of purchasing all the necessary rolling stock. For a reason that is not known, the lease proved unsatisfactory to both parties and starting Nov. 5, 1853, the A. & B. supplied its own equipment and ran its own trains.³⁶ In order to enable them to buy engines, cars and other furniture and to pay off a floating debt, the stockholders authorized the directors on Oct. 17, 1853, to issue \$40,000 worth of bonds, secured by a second mortgage on the railroad property.³⁷

The rolling stock purchased by the A. & B. was probably similar to that of other small lines of the period. While it forms a very interesting part of the road, very little is known about this equipment. Apparently the officials made only the simplest sort of inventory. The most complete record found by the author is contained in the following statement, which was filed in 1854.

"And whereas all the furniture now owned and used by said company for operating said road consisting of two engines and tenders, one baggage car, two passenger cars, five platform cars, three long house cars, two short house cars, numbered 1 to 10 inclusive."³⁸

As was customary with small lines, the locomotive power of the A. & B. was usually second hand and is therefore much harder to trace. What is known of these old wood burners we owe to the untiring efforts of experts who have made a hobby of this work. This paper does not attempt to trace in detail the history of the engines but merely to cite some of the interesting facts concerning them.

³⁴ See page 38.

³⁵ See page 26.

³⁶ Holland, J. G. *"History of Western Mass."* 1854.

³⁷ Carpenter and Morehouse *op. cit.*, 313.

³⁸ Woodward to Sargent *loc. cit.*

The *Express* mentions in various issues four different locomotives: "Amherst", "Bates", "Vermont" and "Champion". There were two engines named "Amherst". The first was built by the Taunton Locomotive Works in 1852 and was acquired by the A. & B. from the N. L. W. & P.³⁹ A letter from Willis Phelps of Springfield to Luke Sweetser advises the purchase of the "Amherst", since it was less worn than any other equipment of the latter company. A subsequent letter to the president of the N. L. W. & P. from Charles Adams, a director of the A. & B., asks that the "Amherst" be delivered at Palmer as soon as possible and especially requests that all tools belonging to the engine be sent with it. Later it was sold to the Watertown and Rome Railroad. The only facts known about the second "Amherst" are that it apparently was built in 1847 by G. S. Griggs of Roxbury, Mass., for the Boston and Providence Railroad. It served the B. & P. as the "Blackstone" and was sold to the Springfield Locomotive Works, where it was rebuilt and sold to the A. & B.

In 1859 Edward Dickinson purchased for the road a locomotive named "Champion" at a cost of eight to ten thousand dollars.⁴⁰ This engine had been built by the Lowell Machine Works in Lowell, Mass., in 1854, but no purchaser was found until Mr. Dickinson took it off their hands. Details concerning the "Vermont" and "Bates" are very few. The "Vermont" was built by John Souther of Boston about 1852. There seems to be no positive identification for the "Bates". There is no proof, but probably both these engines were obtained from the Western Vermont Railroad, which was experiencing financial embarrassment in the fifties. In 1879 the New London Northern, successor to the A. & B., had an engine named "Vermont". Quite probably it was the original "Vermont" and was sold with the other stock to the N. L. N. in 1864. Several of the engines belonging to the N. L. N. in 1872 dated back to the fifties and there is at least the possibility that one or more of the A. & B. locomotives, renamed, are included in this group. Appendix II contains all the information known concerning them.⁴¹

When the road bought its first equipment in 1853, the total cost was \$17,663; two engines cost \$8,550, two baggage and passenger cars \$3,529, and ten merchandise cars \$5,584.⁴² Most of the time the line seems to have been in possession of two engines, but at times this number varied from one to three. According to the report of the A. & B. in the "Returns of the Massachusetts Railroad Corporations" for 1859, there was only one locomotive. In 1862 there were three, but positive identification of them is almost impossible since no characteristics, not even their names, were mentioned.

³⁹ All the material in this paper on the locomotives of the A. & B. has been taken from information gathered by the following authorities: Mr. Charles Fisher, Pres. of The Railway and Locomotive Historical Soc.; Mr. C. A. Heath, Agent, Central Vermont Railway, Inc., No. Franklin, Conn.; Mr. Charles G. Woodward, Connecticut General Life Insurance Co., Hartford, Conn.

⁴⁰ *Express op. cit.* Aug. 5, 1859.

⁴¹ See page 38.

⁴² See Appendix V p. 41.

FINANCIAL HISTORY

A study of the financial story of the A. & B. reveals earnest but disheartening attempts to make ends meet. Its financial failure is doubtless similar to that of other "mania" roads of the period and discussion of it affords an interesting example. Here also, available information is not as complete as we wish, but it is possible to trace chronologically the outline of the road's unsuccessful struggle.*

In 1851 the General Court permitted the sale of \$6,000,000 worth of capital stock, to be sold at the par value of \$100 per share. When it became apparent that only the Palmer-Amherst section would be constructed, \$400,000 was made the maximum capital. The spirit was willing and eager, but local finances were apparently weak. Only \$195,000 worth of stock could be sold. The total cost of the road including the rolling stock came to \$290,000,⁴³ which necessitated further financing in the form of bonds. A \$60,000 bond issue in 1852, payable in five years, was sold to cover the cost of construction and was secured by a first mortgage on the road. A year later, a second mortgage of \$40,000 guaranteed bonds issued to buy rolling stock and to pay off further debts amounting to \$25,500. It is difficult to follow and to state clearly these financial intricacies, but it is apparent that the total bonded indebtedness amounted to \$85,000. If the first mortgage bonds were not paid by January 1, 1858, the trustees would take possession of the line until October 1, 1858, at which time, according to the provisions of the mortgage, the road would be sold for the benefit of the bondholders.⁴⁴

The operating profits of the A. & B. did not reach the optimistic expectations of the promoters. The excess of total earnings over total running expenses in the first full year of operation, 1854, came to exactly \$30. The annual ledger balance in the first four years varied, but by the end of 1857 running expenses for these four years topped income for the same period to the extent of \$1881. During this time the stockholders received no returns on their investment and no dividends were paid on the bonds, not to mention payment on the principal of these bonds.⁴⁵ To alleviate the bondholders' position, supporters of the road proposed in 1857 that the towns of Amherst and Belchertown should guarantee the bonds for 20 years in proportion to their respective-assessed valuation. Thus, Amherst's share would be \$50,000 and that of Belchertown \$35,000. The voters of Amherst, however, were not willing to take any more chances and voted down the scheme in a town meeting 138 to 86.

Raising money to pay off the bonds proved impossible and they were defaulted. Trustees selected previously by the bondholders took over the line January 1, 1858. A special act of the General Court in March, 1858 empowered the trustees to sell up to 1000 shares of preferred stock for the purpose of retiring the bonds and debts of the company.

⁴³ See Appendix V p. 41.

⁴⁴ Information concerning the mortgages taken from the records of the *Hampshire County, Mass., Registry of Deeds*.

⁴⁵ See Appendix VI p. 42.

The act also provided that any purchasers of the road might incorporate the new company under any name they wished. According to the provisions of the original mortgage, an auction was held in October, 1858, and representatives of the bondholders purchased the line. Thus the Amherst and Belchertown Railroad passed out of existence, for the bondholders incorporated under the name of the Amherst, Belchertown and Palmer Railroad. In the financial transactions, the rights of the A. & B. to the whole property were sold for \$30,000 to S. F. Cutler and Charles Adams of Amherst. These two gentlemen then released and assigned to the trustees of the A. B. & P. the rights of the A. & B. for \$30,000. The bondholders merely exchanged their \$85,000 worth of bonds for that much capital stock in the new company. This capitalization of \$85,000 benefited only the bondholders, making no attempt to reimburse those who had contributed to the original construction costs. Those unfortunate souls who had entrusted \$195,000 of their savings in the stock of the defunct A. & B. possessed now only the worthless certificates.

The trustees continued to operate the line until June 1, 1862, when it was leased to W. P. Smith and J. G. Longley, of Springfield, Mass., for \$425 per month for a term of five years. This situation proved unsatisfactory and in a court case the lease was declared void. The company started operating its own trains again on August 29, 1863.⁴⁶

In a few more months the road passed out of local control for all time. On February 8, 1864, the General Court of the state passed a special act authorizing the New London Northern Railroad, which had been formed to take over the N. L. W. & P. in 1860, to purchase the A. B. & P. Starting March 1, 1864, trains from Palmer to Amherst were run by the new owners. The financial transaction was accomplished by an exchange of stock in the ratio of three shares of the A. B. & P. stock for two shares of stock in the N. L. N. Thus 850 shares of the former were turned in for 565 shares of the latter. With the par value at \$100 per share, the N. L. N. acquired the line for \$56,500, or about one fifth of the original cost.

By 1854 the road had cost \$290,074. The original contract for construction came to \$216,785 and the remaining amount represents expenditures for land damages, superstructures, and rolling stock. In Appendix V is given a detailed list of these expenditures.⁴⁷

The running expenses of the road seem to have been rather high. The annual reports made to the state show the operating costs always dangerously near or more than total revenue. Without increasing expenses, considerably more traffic could undoubtedly have been handled and the resulting additional income would have greatly decreased the ratio of operating costs to total revenue. Even with the light patronage which the line enjoyed, there were certain expenses such as salaries, fuel, etc., which probably could not be reduced. Salaries of regular employees averaged \$4000.-\$4500. per year, which seems to be a nominal figure. Nevertheless, some relatively large expenses seem to be out of proportion.

⁴⁶ *Express op. cit.*, Sept. 4, 1863; *Returns of the Railroad Corporations of Mass. 1862, 1863.*

⁴⁷ See p. 41.

Maintenance of way, for example, came to \$4384. in 1860 and in 1863 rose to \$6,457., about one fourth of the total earnings. Repairs to locomotives seem disproportionately high when figures show that to keep two engines in condition cost \$3,454. in 1863. Salaries of the president, treasurer, and superintendent, law and office expenses amounted to \$2,423 in 1857, but after the reorganization these items were reduced to \$100 per year.⁴⁸ Evidently these officers freely contributed their time and efforts to help reduce the running expenses.

The road's financial career must have caused worry and hardship to the original stockholders who lost all their money. Most of these investors could ill afford to lose the few hundred dollars which they put into the venture. After the reorganization, dividends amounting to 20% were paid between 1859 and 1864, but since they were only on a capitalization of \$85,000, the actual return was small. In spite of these poor dividends, the directors and promoters cannot be accused of trying to mislead the investors. They honestly believed the road would be a success and did their best to make it so. At least the rail connections did satisfy the mania and were thought to increase the town's prestige. Amherst had her railroad, indeed, but one whose benefits hardly justified its costs. The economic background of the section, inadequate for the building and financing of a local railroad, will be discussed in the following chapter.

CHAPTER III

CONCLUSION AND EVALUATION

Mania Versus Economic Background

The A. & B. was an economic failure. Wisdom of hindsight makes apparent several basic factors responsible for its lack of success. Under the spell of the railroad mania, everyone hoped and naively believed that a railroad into this section would be a profitable enterprise by opening up outside markets for local goods and facilitating importation of needed commodities. These fond hopes, however, were more than counterbalanced by the presence of certain factors which doomed the local line to failure before it was begun. The very limited area that could be served by the road, the small and stable population, absence of industrialization, small scale and decadent farming, and meager financial resources could not support the railroad.

Only two communities, Amherst and Belchertown, were served by the A. & B. If the line had been constructed as was planned, to Montague, the larger contributing territory plus connections with two main railway lines might have made the local venture self supporting. The difficulty in financing the Palmer-Amherst section should have clearly indicated that local capital could not possibly furnish a similar amount

⁴⁸ *Returns of the Railroad Corporations of Mass. 1863-64.*

necessary to make the road a through line. The potentialities of the area that could possibly be served by this dead-end line were far from promising when viewed from an impartial, practical survey. The original backers must have assumed that the surrounding towns of Granby, Hadley, Leverett, Pelham, Shutesbury, and Sunderland could be expected to furnish traffic and enjoy the benefits of this new means of communication. Before advocating the road so ardently, the backers should have conducted a serious study to estimate the amount of traffic and revenue which a railroad might expect from this limited territory. One very important factor which apparently was not considered was the very small number of inhabitants.

Use of the State Census would have shown the promoters that the total population of these eight towns in 1850 amounted to only 12,462. Most of this population lived on farms a considerable distance from the depots. The region contained no large centers which meant that there was no concentrated demand for commodities that might be brought in by a railroad. Amherst, the largest town, had only 3057 people.⁴⁹ One very important characteristic of the population which was not so apparent then, is the fact it was nearly stable. As the accompanying chart shows, the increase from 1840 to 1875 in these communities was only 5.65% while the population of the whole state increased 124% within the same period.⁵⁰ These figures indicate that the A. & B. could not count on growing population to augment future revenues. It is also apparent that there was little movement in and out of the region to supply freight and passenger volume.

POPULATION OF THE REGION SERVED BY THE A. & B. RAILROAD*

	1840	1850	1860	1870	1875	Total Increase	% Increase
Amherst	2,550	3,057	3,206	4,035	3,937	1,387	54. 5
Belchertown	2,554	2,680	2,709	2,428	2,315	-239	- 9.38
Granby	971	1,104	907	863	812	-159	-16. 4
Hadley	1,814	1,986	2,105	2,301	2,125	311	17. 2
Leverett	875	948	964	877	831	- 44	-05.05
Pelham	956	983	748	673	633	-323	-33. 8
Shutesbury	987	912	798	614	558	-429	-43. 5
Sunderland	719	792	839	832	860	141	19. 6
Pop. of region	11,426	12,462	12,276	12,623	12,071	645	5.65%
State pop.	737,700	994,514	1,231,066	1,457,351	1,651,912	914,212	124%

⁴⁹ *Census of Mass. 1850.*

⁵⁰ See page 32.

* Figures taken from *Census of Mass. 1840, '50, '60, '70, '75.*

- Indicates decrease.

Meager industrial output was another drawback to the economic development of the section. The few inhabitants offered no concentrated local market to encourage large scale production. Except for a few unimportant quarries, there were no raw materials to foster industry or furnish freight revenue. Some lumbering was done and wood products manufactured but mostly for local consumption. Shoes, tinware, hats, brooms, paper, textiles, and leather goods were made in varying quantities but the finished products were generally small and light and could not greatly benefit railroad freight tonnage. The promoters would have profited by examining the state publication, "The Branches of Industry In Mass." There, they would have seen that the total value of manufactured products for the several towns in 1845 amounted to only \$537,800. Careful consideration would have told them that even this figure was deceptively large when it came to estimating the amount of freight the line could possibly expect from these goods. With the tracks reaching only Amherst and Belchertown, products manufactured in the other communities for outside consumption were very likely to find their

**VALUE OF MANUFACTURED PRODUCTS IN REGION SERVED
BY THE A. & B.***

	1845	1855	1865	1875
Amherst	\$195,000	\$203,000	\$300,000	\$497,526
Belchertown	66,800	175,000	240,000	138,152
Granby	40,000	70,000	74,000	26,988
Hadley	130,000	168,000	220,000	207,345
Leverett	41,000	34,500	55,000	32,004
Pelham	22,000	14,000	53,000	9,225
Shutesbury	23,000	37,000	21,000	16,357
Sunderland	20,000	16,000	23,000	800
Total value	\$537,800	\$717,500	\$986,000	\$928,397

**VALUE OF AGRICULTURAL PRODUCTS IN REGION SERVED
BY THE A. & B.***

	1845	1855	1865	1875
Amherst	\$ 76,000	\$105,000	\$ 260,000	\$ 263,925
Belchertown	74,000	178,000	207,000	303,662
Granby	33,000	78,000	91,000	191,816
Leverett	30,000	32,000	42,000	84,200
Pelham	18,000	29,000	32,000	58,553
Shutesbury	19,000	26,000	24,000	54,952
Sunderland	40,000	75,000	176,000	184,520
Hadley	96,000	190,000	273,000	492,551
Total value	\$386,000	\$708,000	\$1,105,000	\$1,636,507

*Figures from *Branches of Ind. of Mass. 1845, 55, 65 and Census of Mass. 1875.*

NOTE: Figures do not include value of animals.

way to the railroad at the larger and more advantageously located town of Northampton, only a few miles to the West on the Connecticut River.

These towns were largely supported by small scale farming. In the agricultural field also, the products were generally for local needs. The farmers hoped that the railroad would enable them to increase production by making it possible for them to find a market for a large portion of their crops in Eastern industrial centers. It was too bad they did not seem to realize that the mania which put Amherst on the railroad map was at the same time opening up the larger, more fertile areas to the West. Thus it was becoming increasingly difficult for this section to compete in supplying these Eastern centers with such staples as hay and grain. Investigation would have informed the Yankee railroad enthusiasts that the region had no large money crop which could be exchanged for outside products. Rough topography and poor soil combined to keep the crops diversified and small. The official figures of the accompanying chart show that the value of agricultural products increased considerably after 1845.⁵¹ Nevertheless, judging from the amount of freight carried by the A. & B. after it had been in operation a few years, the railroad did not carry out increasing amounts of agricultural goods. In 1856 10,598 tons of freight were hauled and in the following years remained nearly constant but declined to 9,041 tons in 1862.⁵² Doubtless the railroad was partly responsible for the increasing value of farm products but the local trend was toward the growing of garden produce from which the A. & B. did not receive a large nor increasing amount of tonnage.

Amherst and vicinity was an economically backward region. Although the value of products increased in the period from 1845 to 1875, the total value was small, amounting to only \$2,565,104. at the end of this interval. Compared with the rest of the state, the economic progress of this section was nearly stationary. In 1845 .807% of the manufactured and agricultural products of the whole state were produced in this district but by 1875 the corresponding figure had declined to .402% as shown in the following chart. With the handicap of a small population off the main lines of commerce, and having few raw materials and poor soil, it was only natural that economic activity was relatively stagnant. This situation was scarcely conducive to surplus of capital which might be free for investment in a local railway enterprise.

VALUE OF MANUFACTURED AND AGRICULTURAL PRODUCTS IN REGION SERVED BY THE A. & B. COMPARED WITH THAT OF THE STATE OF MASS.

	Year	State of Mass.	by A. & B. Region served	% produced in local region
Total value of manuf. and agric. goods	1845	\$114,478,000.	\$ 923,800.	.807%
	1855	295,820,681.	1,425,500.	.477%
	1865	517,240,613.	2,096,000.	.405%
	1875	639,877,465.	2,565,104.	.402%

⁵¹ See page 34.

⁵² See Appendix III, page 39.

The failure to raise more than \$195,000. in stock subscriptions demonstrated the serious lack of capital. Amherst was not a poor town but the people lived simply and raised on their own fields enough to satisfy most of their needs. Relatively little hard money was required for this quiescent economic activity. The money scarcity forced the road to terminate at Amherst and saddled it with the interests of the bonded debt.

The panic of 1857 came at a crucial time for many of the early lines. It seemed to have no ill effects on the A. & B., however, for revenues in 1858 were higher than any preceding year.⁵³ Blame for the failure of this enterprise must not be laid on the panic but rather on the more basic, local conditions already discussed.

The benefits of the A. & B. cannot be definitely evaluated. Not counting the financial losses, the enthusiasts did consider that they were now enjoying several worthwhile advantages. The coming of the railroad facilitated travel in and out of Amherst and Belchertown; it opened the communities to the outside world. The people were assured of quick, dependable service for personal trips and could count on speedier mail and freight delivery. Bulk shipments were now possible without resorting to the cumbersome and costly transportation by horse and wagon. Then too, the physical presence of the wonderful steam locomotion filled the citizens with a sense of pride and offered to the world a genuine testimonial of their progressive spirit. It does not seem, however, that these benefits were sufficient to offset the staggering blow dealt by the railroad to the individual financial chests of the local inhabitants.

Amherst's desire to be on the railroad map may be considered as the local manifestation of the general mania. Credit must be given for the continued perseverance against financial odds. The desire was fulfilled—but the question that comes to mind is whether the coveted rail connections could have been obtained by other means. Could a railroad have been put through Amherst without such a drain on the inadequate assets? The answer is a fairly positive "yes". Once the N. L. W. & P. reached Palmer in 1850, it seems quite probable that its tracks would soon have been extended Northward through Amherst. With the rapid advance of rail to all sections, this larger, better financed line would certainly have made connections in order to bid for the produce of Northern New England and Canada seeking outlets to the Eastern industrial centers and seaports. This policy was immediately followed when the N. L. N. absorbed the A. B. & P. in 1864. Regardless of the eventual extension of the New London Northern, a separate line was constructed through Amherst. In 1887 the town received direct connections with Northampton and Boston by the completion of the Massachusetts Central Railroad (now a part of the Boston & Maine system). Careful investigation, an eye to the future, and patience to resist the railroad mania would have delayed Amherst's railway aspirations a few years, but more important, would have saved the people the worry, disillusionment, and expense connected with their experiment.

⁵³ See Appendix VI, page 42.

The railroad mania in the fifteen years before the Civil War was unmistakably apparent in hundreds of communities throughout the East. The rapid extension of track was sure to prove a panacea for economic and cultural isolation and the awe-inspiring sight of the snorting locomotives thrilled many a heart. In far too many instances the smiles of the early enthusiasts changed to frowns of worry and disappointment, fostered by insufficient finances and lack of traffic to support the ventures. Such was the case of the Amherst and Belchertown Railroad. Its interesting but dismal record as a local railroading enterprise affords a good example of the problems faced by a mania road.

THE A. & B. AFTER 1864

The purpose of this paper has been to study the history, and economic factors responsible for the unsuccessful operation of the A. & B. as a local line. A brief resumé of its subsequent history, however, is interesting and worth while at this point. Soon after the New London Northern acquired the A. B. & P., construction was begun to Millers Falls, Mass. and finished in 1867. The Vermont Central Railroad leased the N. L. N. in 1871 in order to obtain through connections to Long Island Sound. Financial difficulties resulted in a reorganization in 1899, as the Central Vermont Railroad with the Grand Trunk Line of Canada controlling a majority of the stock. The original A. & B. was now only a small section in a large system regulated by Canadian interests and this is its status today. The Canadian government took over the Grand Trunk Railway in 1922, making it part of the Canadian National Railway system.⁵⁴ In 1929 the Canadian National purchased outright the C. V. Railroad for \$22,000,000. The Palmer-Amherst section is contained in the 121 mile Brattleboro Vt.-New London Conn. division. Passenger service through Amherst is limited to one train per day each way and is patronized very lightly. Five freight trains, each carrying about 2,000 tons, pass over this route daily. Northward bound freight consists mainly of merchandise such as manufactured articles, and coffee, sugar, and spices enroute to Canada from Atlantic ports and industrial centers. From Canada come grain, lumber, newsprint, and Canadian automobiles for export. A boat line from New London to New York gives the C. N. direct connections with the latter and there is a large freight movement between Montreal and New York City. Amherst and vicinity furnish very little freight revenue and most of the trains run on fast, through schedules.

⁵⁴ Baker G. P., *Formation of The New England Railroad Systems* pp. 226-247.

APPENDIX I

Physical Characteristics—1857¹

Length of Road.....	19.50 miles
Aggregate length of sidings.....	2,000 feet
Weight of rail per yard.....	53 pounds
Maximum grade.....	67 feet for $\frac{3}{4}$ mile
Total rise and fall in road.....	340 feet
Shortest radius of curvature, with length.....	400 feet
Of curve, in the main road.....	500 foot radius
Total degrees of curvature.....	495 degrees
Total length of straight line.....	14 $\frac{1}{4}$
Aggregate length of wooden truss bridges.....	375 feet
Aggregate length of all other bridges.....	10,100 feet
Unfenced road.....	None
Number of public ways crossed.....	19
Number of railroads crossed.....	1
Way stations.....	3
Flag stations.....	3

¹Returns of the Railroad Corporations of Mass., 1857.

APPENDIX II

Roster of Locomotives²

A. & B. RR.

Name	Builders	Date	Type	Cyls.	Drivers	Weight
Amherst	Taunton Loco. Works	1852	4-4-0	16x20	54 in.	38 tons
Amherst	Griggs Roxbury, Mass.	1847	4-4-0	14¾x20	60 in.	20½ tons
Champion	Lowell Machine Works	1854				
Vermont	Souther Boston, Mass.	ca 1852				
Bates	?	?				

Old Engines of N. L. N. RR.³

No.	Name	Builders	Date	Type	Cyls.	Drivers
1	New London	Taunton Loco. Works	1849	4-4-0	14x18"	60 in.
2	Stafford	Taunton Loco. Works	1849	4-4-0	14x18"	54 in.
3	Willimantic	Taunton Loco. Works	1849	4-4-0	15x20"	54 in.
4	Chicopee	Taunton Loco. Works	1850	4-4-0	15x20"	54 in.
5	Monson	Hinkley & Drury	1851	4-4-0	16x20"	54 in.

² For sources of information see *op. cit.* note 39, p. 30.

³ Information gathered and compiled by C. A. Heath of No. Franklin, Conn.

APPENDIX III

TRAFFIC ON THE A. & B., 1853-1864⁴

Year	Number of Passengers	Tons of Freight	Total miles run
1853	information not given		
1854	23,140	9,050	25,560
1855	21,840	16,495	23,840
1856	18,416	10,489	20,910
1857	18,286½	10,598	17,120
1858	information not given		
1859	13,255	7,784	13,860—(for 11 months, Jan. 1-Nov. 30)
1860	17,191	10,823	18,660
1861	17,001	9,006	22,260
1862	17,279	9,041	24,400
1863	6,421	2,839	6,800—(for 3 months)
1864	information not given		

⁴Returns of Railroad Corporations of Mass. 1853-1864.

APPENDIX IV

TIME TABLES AS OF 1853

N. L. W. & P. AND THE A. & B. COMBINATION SCHEDULES⁵

Leave New London	at	7.30 A. M.	for Amherst
" Norwich	"	8.12	" " "
" Willimantic	"	9.05	" " "
" Palmer	"	10.45	" " "
Arrive Amherst	"	12.00 noon	

Leave Amherst	at	5.00 A. M.	for New London, New York
" Palmer	"	6.30	" " " " " "
" Willimantic	"	9.05	" " " " " "
" Norwich	"	9.55	" " " " " "
Arrive New London	"	10.30	"

Through tickets on sale in Amherst—

via steamboat for New York	via train for	
Cabin \$3.50	Worcester	\$1.75
Deck \$3.00	Springfield	\$1.00
	Albany	\$3.75
	Boston	\$2.85

AMHERST AND BELCHERTOWN RAILROAD SCHEDULE AS OF 1856⁶

Leave Amherst	at	8.30 A. M.	1.00 P. M.
" Dwight's	"	8.50	1.15 "
" Belchertown	"	9.15	1.30 "
" Three Rivers	"	9.45	1.50 "
Arrive Palmer	"	10.00	2.00 "

Leave Palmer	at	10.45 A. M.	2.30 P. M.
" Three Rivers	"	11.00	2.45 "
" Belchertown	"	11.20	3.20 "
" Dwight's	"	11.40	3.40 "
Arrive Amherst	"	11.55	4.00 "

⁵ Express op. cit., May 13, 1853 and Nov. 3, 1856.

APPENDIX V **COST OF ROAD—1854^e** **COST OF CONSTRUCTION**

Cost of road on contract	\$216,743
Cost of superstructure during year	2,856
Cost of stations, buildings & fix.	9,081
Land damage payments	25,546
Engineering costs	1,911
Agencies and other costs	16,232
<hr/>	
Total	\$272,411

COST OF EQUIPMENT

2 engines	\$ 8,550
2 baggage cars }	3,529
2 passenger cars }	
10 freight cars	5,584
Total	<hr/> \$ 17,663
Cost of Construction	\$272,411
Cost of Equipment	17,663
Total	<hr/> \$290,074

^e Returns of The Railroad Corporations of Mass. 1854.

APPENDIX VI

ABSTRACT OF THE ANNUAL REPORTS OF THE A. & B. RAILROAD[†]

Year	Capital	Capital Paid in	Cost	Earnings	Total Expenses	Profit	Net Debit	Dividends
1853	400,000	185,736	263,743					
1854	"	192,999	290,074	18,111	18,081	30	90,763	0
1855	"	193,077	293,910	27,415	27,968	552*	90,064	0
1856	"	194,641	294,743	20,253	21,941	1,638*	89,794	0
1857	"	195,101	295,337	22,670	22,391	279	89,541	0
1858				24,378	15,187#	9,191		0
1859	85,000	85,000	85,000	23,673	17,743	5,930	0	6%
1860	"	"	"	28,864	23,205	5,659	5,000	6%
1861	"	"	"	28,318	25,320	2,998	4,000	3%
1862	"	"	"	29,482	29,482	0	6,500	0
1863	"	"	"	25,556	21,028	4,528	5,000	5%

[†] Returns of The Railroad Corporations of Mass. 1853-1863.

* indicates loss.

figures for period Jan. 1.-Nov. 30, 1858.

BIBLIOGRAPHY

The author has not been able to find any of the original documents of the A. & B. Mr. H. G. Elder of Amherst, Mass. has taken a lively interest in the history of the road and has procured a photostatic copy of the charter which is preserved in the Mass. State House at Boston. Most of my information has come from official state publications, county court records in Northampton, Mass., and the local newspaper printed in Amherst.

PRIMARY SOURCES

Government Publications

MASSACHUSETTS

Private and Special Statutes of the Commonwealth of Massachusetts, 1845-1864
Boston, 1848, '60, '61, '69

The information on the state legislative acts concerning the A. & B., its predecessors and successors, was taken from this source.

Census of Massachusetts, 1855, '60, '75 Boston, 1857, '63, '76

Used for all population data and for the output of agriculture and manufactures, 1875

Returns of The Railroad Corporations of Mass., 1852-1864 Boston, 1853-1865

This is the only source for the yearly reports of the A. & B. Without these reports, it would have been impossible to include several of the Appendices and the conclusions drawn from these figures.

Statistics on The Condition and Products of Certain Branches of Industry In Mass. 1845, '55, '65 Boston, 1846, '56, '66

These reports were used to obtain the value of agricultural and manufactured goods in the above years and the figures were very helpful in determining the economic conditions in the region served by the A. & B.

Newspapers

Hampshire and Franklin Express, 1845-1864—Amherst, Mass.

This local weekly was very helpful in obtaining scattered bits of information, local color, and local feeling towards the railway project. Its railroad references echoed the mania.

Hampshire County, Mass. Court Records

(NOTES—Since the A. & B. was entirely within Hampshire county, the legal transactions were filed at this court.)

Court of Sessions and Inferior Court of Common Pleas

Nothing on the A. & B. except a few cases relative to delinquency in payment of stock assessments.

Registry of Deeds

Files contain records of the financial transactions, changes in ownership, and land transfers.

Supreme Judicial Court

Nothing on the A. & B. except a few cases concerning delinquence in payment of stock assessments.

Court of Common Pleas; Superior Court; Probate Court

No records concerning the A. & B.

Local Histories

Gay, W. B., *Gazetteer of Hampshire County 1654-1887* Syracuse, N. Y., 1887

Has no material on the A. & B. but contains a good map showing the route of the road.

SECONDARY SOURCES

General Histories

Beard, C. A., ed. *A Century of Progress*, New York, 1932

Chapter 5, on "Transportation and Communication" depicts the early railroad development, followed by the great construction boom of the 1840s and '50s and emphasizes the lead of New England in the expansion. There are no references to the A. & B. and was used only for general background material.

Hulbert, A. B., *The Paths of Inland Commerce* (vol. XXII of the *Chronicles of America* ed. by Allen Johnson) New Haven, 1920

Used only for general background material. Chapter 9 contains a good summary of the great railroad construction between 1840 and 1860.

MacGill, C. E. et al *Transportation in the U. S. Before 1860* Washington, D. C. 1917

Chapter 12 deals with the early railroads in New England but does not mention the A. & B. Its use in connection with this paper was in determining the general railroad situation.

McMaster, J. B., *History of The American People*, vol. VIII New York, 1913

Chapters 87 and 92 were read to gain a general picture of the social conditions during the railroad mania period. The author emphasizes the too rapid construction and insufficient finances.

Smith, T. C., *Parties and Slavery, 1850-59* (vol. XVIII of *The American Nation* ed. by A. B. Hart) New York, 1906

Used for general background material. Chapter 5 contains a good account of the railroad mania and construction between 1850 and 1860.

Special Monographs

✓ Baker, G. P., *The Formation of The New England Railroad System*, Cambridge, Mass. 1937

The book does not mention the A. & B. except in a chart showing the formation of the Central Vermont system. This chart is very helpful in tracing the control of the A. & B. after 1864. The author's treatment of other local roads shows that this one is a typical example.

Hulbert, A. B., *Soil—Its Influence on the History of The United States*, New Haven, 1930

The book contains nothing on the A. & B. and was used only to obtain a description of the farming and soil in the Connecticut Valley.

Klimm, L. E., *The Relation Between Certain Population Changes and Certain Environment in Hampden, Hampshire, and Franklin Counties, Mass. 1790-1925*, Philadelphia, 1925

This study discusses clearly and thoroughly the topography, population, agriculture of Amherst and vicinity. Particular emphasis is given to the declining economic activity of the hill towns such as Pelham and Shutesbury.

Wright, J. K., ed. *New England's Prospect: 1933* (special pub. No. 16, *American Geographical Society*, New York, 1933)

This contains a good topography survey. Gives nothing on the history of the A. & B. but does have a good summary chapter of the present railway systems in New England and their prospects for the future.

Local Histories

Carpenter & Moorhouse, *History of Amherst, Mass.* Amherst, Mass. 1896

Chapter 38 contains a very good, short summary of the history and financial struggles of the A. & B. Short sketches are also given of the unsuccessful attempts to build the Hampshire & Franklin Railroad and the Amherst Branch Railroad.

Hitchcock, H. F., *The Handbook of Amherst, Mass.* Amherst, Mass., 1891

The N. L. N. is mentioned but there is nothing of value on the A. & B.

Holland, J. G., *History of Western Mass.* Springfield, Mass., 1855

Mentions the operating agreement of the A. & B. with the N. L. W. & P. but gives no reasons for the breaking of the agreement.

Nason, Elias, *Gazetteer of the State of Mass.* Boston, 1876.

Has no direct information on the A. & B. but has a good map showing the route of the line.

See, Anna P., *Amherst—Past and Present*, Amherst, Mass., 1930

No help. Contains only one short paragraph on the A. & B.

Biography

Bianchi, M. D., *The Life and Letters of Emily Dickinson* Boston, 1924

This was used only to obtain a letter written by Emily Dickinson to her brother about the coming of the A. & B. (see page 22)

Address

Gabriel, Ralph, H., *The Founding of Holyoke*

Describes the building of the dam across the Conn. River at Holyoke. The resulting cheap power at Holyoke was not possible around Amherst due to lack of rivers. Industry tended to concentrate around Holyoke and stayed out of the territory served by the A. & B.

Messrs. Harrison, Winans & Eastwick

ST. PETERSBURG, RUSSIA

By RICHARD E. PENNOYER

A GOOD deal has been written from time to time on the locomotives imported from abroad for service on American railways in their early stages of development, and the various builders; dates of delivery; types of engines and the railways to which they were consigned are now known with some accuracy and completeness.

A full account of the export trade in American locomotives has still to appear however, and the following short description of an unusual instance where, some 95 years ago, locomotives that were offshoots of American practice were built abroad by a firm of American manufacturers for service on a foreign railway, may provide data that would be useful in the careful study that the subject warrants.

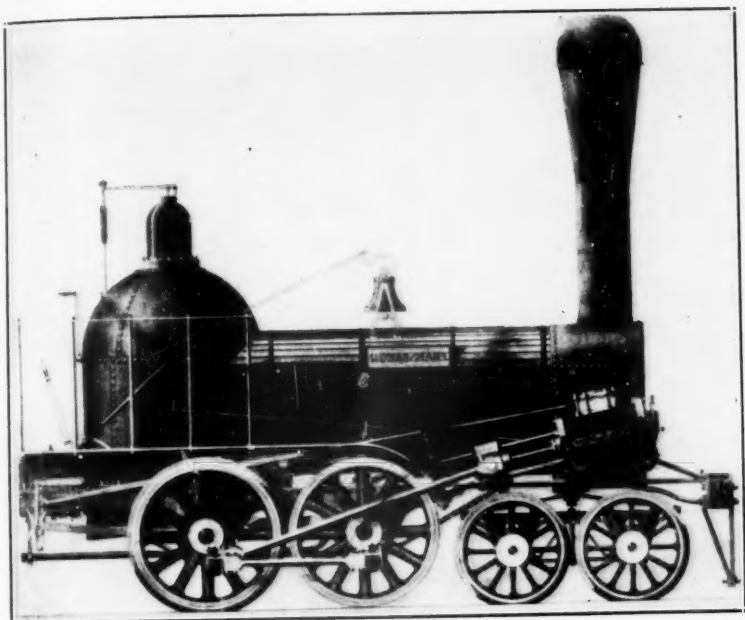
In a paper read before the Franklin Institute of Philadelphia on February 21st, 1872, Joseph Harrison, Jr. has some interesting remarks to make on his firm, Messrs. Eastwick & Harrison, Locomotive Builders of Philadelphia, and the famous engine, the "Gowan & Marks", which they delivered to the Philadelphia & Reading Railroad in 1840.

The dimensions of this locomotive, Fig. 1., named after a London Banking House which has long since gone out of business, but the use of whose name suggests that it was interested in financing the Philadelphia & Reading, were unusually large for the period. The engine weighed 24,660 pounds ready for the road. It had 18,260 pounds on its 3 ft. 4" drivers, its cylinders were 12½ inches in diameter with a 16 inch stroke and the boiler carried the very high pressure of 130 pounds to the square inch. The truck wheels were 2 ft. 6 inches in diameter.

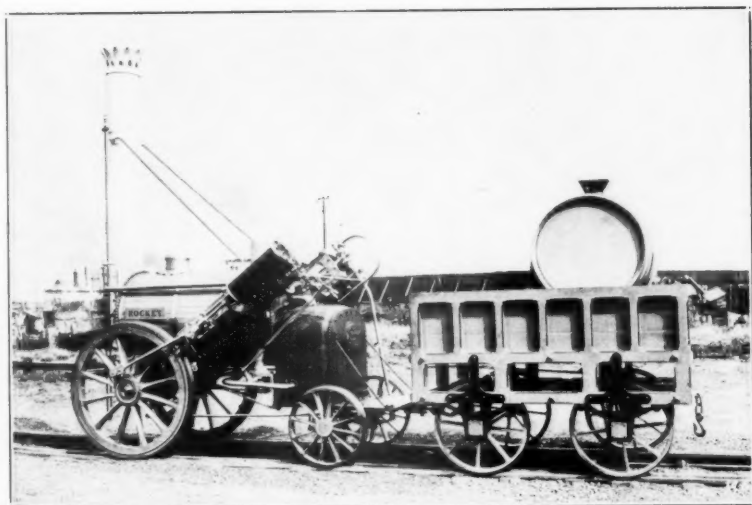
The "Gowan & Marks" represents an important stage in the development of the standard 4-4-0 or "American" type of locomotive. It embodied for the first time, though in a form that was still to be perfected, the equalizing gear which Harrison had patented in principle in 1838, and it is believed to have been the first engine to have been fitted with the steam blower.

On February 24th, 1840, the "Gowan & Marks" drew a train of 101 loaded 4 wheeled cars from Reading to Philadelphia at an average speed of just under 10 miles an hour, the train weighing 423 tons exclusive of engine and tender, being 40 times the engine weight if the weight of the tender be added to that of the train.

The performance of this locomotive and ten subsequently built at Lowell, Mass., of a similar design, was such an outstanding event at the time that it attracted the attention of several foreign railway men, among them the Russian Railway Commissioners Colonels Melnikoff and Kraft, who had been ordered to report on European and American railways by the Emperor Nicholas I. They were so impressed with the performance of the engine that they recommended it as the type of locomotive best

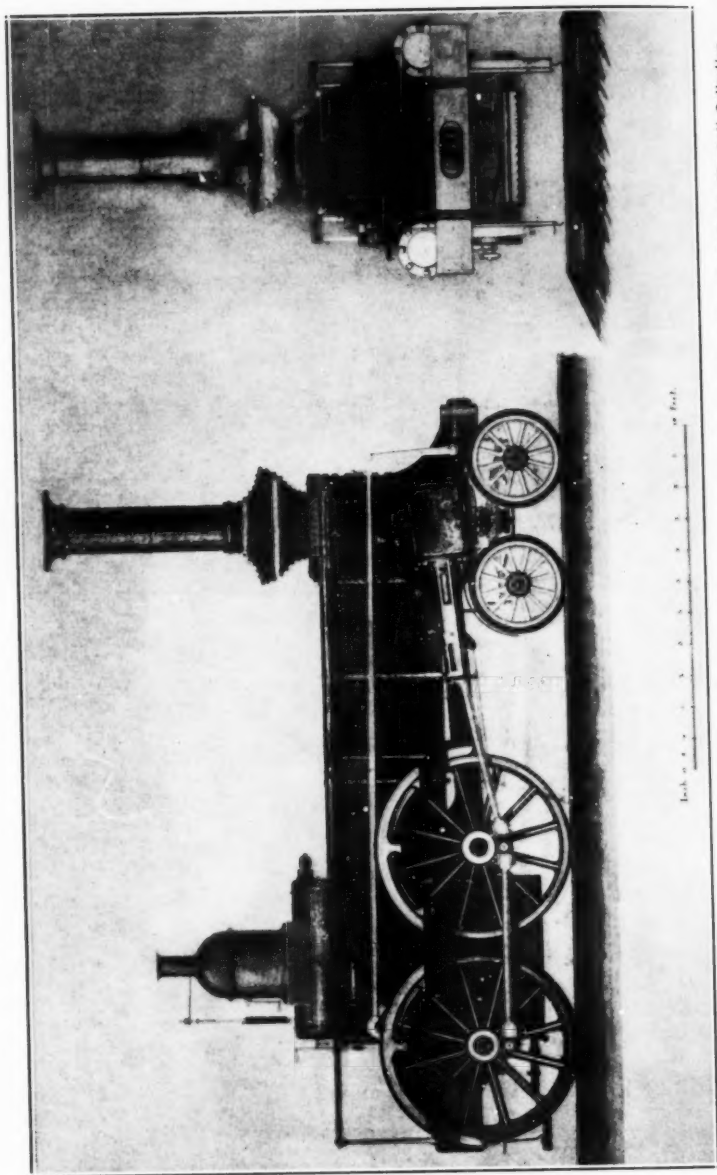


The "Gowan & Marks," Eastwick & Harrison, Philadelphia, 1840.



Courtesy of F. Moore's Railway Photographs.

A full sized copy of the original "Rocket," built in 1929 by R. Stephenson & Co., Darlington.



Harrison, Winans & Eastwick 4-4-0. St. Petersburg, Russia, 1844. Photograph of Drawing dated 1851. From C. F. Dendy Marshall Collection.

sited to the new railway between St. Petersburg and Moscow that the Emperor was then building, whose lay out, according to one of those pleasant legends that attempt to explain so many railway incidents of the past, he determined by drawing a straight line between the two cities. Whatever the cause, the Emperor, his engineers or the topography of that part of Russia, the resulting main line has indeed far less curvature in its 400 odd miles than any other of similar length on the Continent, following almost literally the legendary Imperial decree.

As a result of the recommendation of the Commissioners' report, Eastwick and Harrison were requested to make a visit to St. Petersburg with a view to entering into a contract with the Imperial Government for the supply of locomotives, rolling stock and machinery for the new Railway, the first great trunk line in the Empire and the first to be built to the present Russian Standard gauge of 5 ft. and on the construction of which, incidentally, another American was engaged, Col. G. W. Whistler, a West Pointer and father of the even more famous artist James McNeil Whistler, the excellence and precision of whose later draftsmanship was undoubtedly due to his early training in his father's drawing office during the building of the line. Harrison went to St. Petersburg in the spring of 1843. Before the close of that year he and Thomas Winans of Baltimore had signed a contract with the Russian Government, the chief provisions of which were that they undertook to build 162 locomotives and 2500 iron trucks for freight cars before the end of 1851, a contract that both from the number of locomotives involved and from the early date of its signature, is an outstanding one in railway history.

Under the terms of the contract, Messrs. Eastwick & Harrison closed their Philadelphia plant in 1844, removed part of its machinery to St. Petersburg where Eastwick joined Harrison, and, working under the style of Messrs. Harrison, Winans & Eastwick in the Alexandrovsky Arsenal there, completed their contract in due course.

On its termination the firm entered into a second contract for the repair and maintenance of the rolling stock that they had built under the first, completed the second one in 1862, and then appear to have severed their connection with Russia. Two types of locomotives built to the firms design in the Arsenal are shown in Figs. 3 and 4, the first engine of each class appearing in 1844.

The great improvement that had taken place in the construction of locomotives since the delivery of the "Gowan & Marks" four years previously will be seen at once. Compared to it these two engines, especially the 4-4-0, have an almost modern look and certain of their details represented such advanced design that these were considered good practice for years to come.

One of the principal differences between the "Gowan & Marks" and these newer engines is that the latter were fitted with plate frames instead of the bar framing used by Eastwick & Harrison in Philadelphia, and as this was a break with traditional American methods of construction and as the question of the relative merits of the two types of frames is still a contentious one today, the point is of more than passing interest and may justify a short digression.

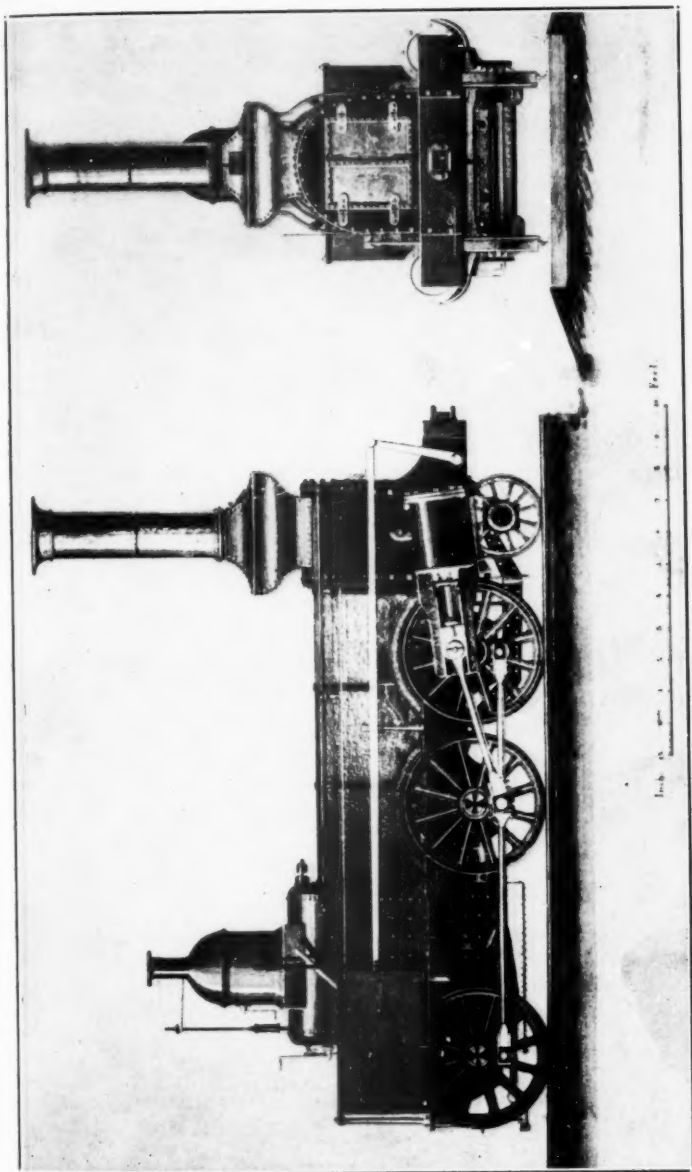
To go no further back than the Rainhill Trials, bar frames in a primitive form appear there in the "Rocket", Fig. 2. Robert Stephenson doesn't seem to have been satisfied with them, however, for he soon dropped them in favour of his well known sandwich frames, (see page 16, Bulletin 38 1935), a type of construction that he used for many years and supplied to railways all over the world.

Typical bar frames next appear in the "Liverpool" which Bury turned out of his Clarence Foundry in 1830, it being a rebuild of his unsuccessful "Dreadnought" that he had been unable to finish in time for the Trials, Fig. 5. This engine is remarkable as it is the first in which 6 ft. coupled wheels were ever used. Aside from that, however, it is typical of Bury's famous 4 wheeled type of construction. This he soon standardized. He never used 6 ft. coupled wheels again, and most of his 4 wheeled engines had wheels less than 5 ft. in diameter. At first he built them with all four wheels of the same diameter, his passenger engines being uncoupled (See page 32 Bulletin 46), and his freight engines coupled, Fig. 6. In their next stage, his passenger engines had small leading wheels Fig. 8 and he continued to build these two types for some time to come, refusing to change his designs even in the face of a growing opposition on the part of the Railways that eventually led to his becoming financially embarrassed. It was chiefly through this type of locomotive that bar framing was introduced into the United States. There it was destined to become well nigh universal, supplanting at a very early date the sandwich frame found in most of the locomotives sent out by Stephenson.

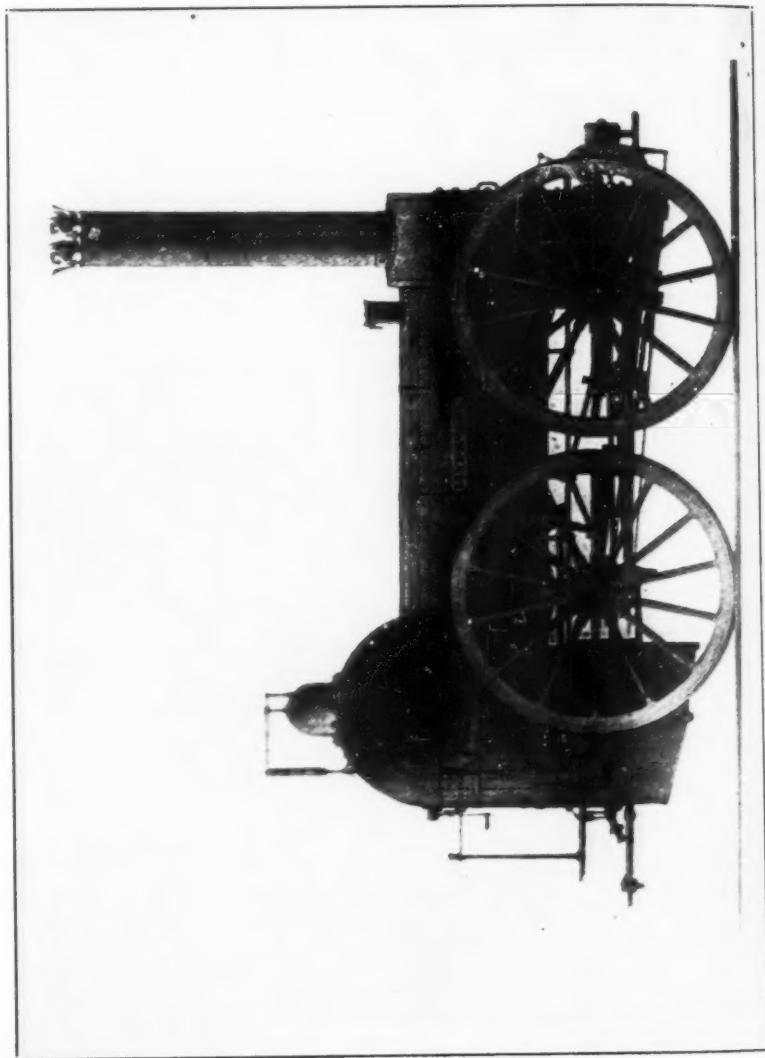
Several reasons are advanced to explain the almost immediate popularity of the bar frame in America. One is the comparative rarity of skilled machinists in the American shops of those days. Another was the scarcity of machine tools capable of dealing with the more accurate work that was necessary in the complicated sandwich frames, a type of work that on a larger and more accurate scale still would have been necessary had plate frames come into question there. But the sandwich frames had been discarded and the bar frame generally adopted by American builders before the plate frame had reached its full development in England, and with the decline in the importation of English locomotives that set in before this, plate frames never became a practical question in the United States.

Looked at from the point of view of the skilled labour available, iron bars because of their similarity in size and shape to every day timbers, were easily handled by the workmen of the time, many of whom, with the expert knowledge of carpentry that the life of that day had made general, had gone into locomotive shops where, with the aid of blacksmiths, they were able to solve frame problems in bars as easily as they had been able to do in their earlier timber constructions.

There is the further point of the capacity of the American rolling mills of that day. The production of bars would be a much easier task for them than the rolling of long plates. A glance at contemporary boilers, with their multiplicity of small plates, emphasizes this rolling mill problem, and even if the mills could only roll short bars, it



Harrison, Winans & Eastwick 2-6-0. St. Petersburg, Russia, 1844. Photograph of Drawing dated 1851. From C. F. Dendy Marshall Collection.



Bury's "Liverpool," 1830. From C. F. Dandy Marshall's "Centenary History of the Liverpool & Manchester Railway."

was easier to weld them to a given length than it would have been in the case of plates.

If one grants the principal advantage of plate frames these same reasons, only reversed, would account for their being preferred in England and on the Continent.

England had already had a long tradition of skilled workers in iron before Stephenson built the "Rocket". There was also a clearer distinction between metal and wood workers, as their trades did not overlap in the same way that conditions of life in the United States more or less dictated. Machine tools and rolling mills were also available in larger sizes than anywhere else, and a high standard of accuracy in erection and what one might call a machine or design sense as such already existed to a greater degree than could have been expected with the more primitive equipment of industry then evident in the U. S.

Plate frames would appeal to designers who had these technical resources, human and material, at their back. As contrasted with bar frames, the greater ease and security with which plate frames lent themselves to the attachment of cylinders, guide yokes, running plates, deck, buffer beams, cross bracing and the partially rectangular smoke boxes that were soon to develop, all made for a strong and simply designed type of construction that the more rigid European engineering standards did not consider could be equalled with bars, through their recognized weakness, for instance, when it came to the fastening of cylinders to them.

Simple plate frames therefore soon came into their own in England and on the Continent as an alternative to the sandwich frame used by Stephenson which even he eventually abolished in their favour, and though bar frames had a far greater try out in Europe, particularly in England, than ever sandwich frames had in America, they were as definitely discarded there as the sandwich frame was in the United States.

Bury as has been mentioned was a firm believer in bar frames. After he had built over 400 locomotives, most of which had them particularly at first, he closed down his works in 1850. Once his small four wheeled engines had been withdrawn from service, which took place fairly rapidly because of their low tractive power and unpopularity, and after the Norris engines ordered for the Likey Incline had been scrapped, which also occurred at a comparatively early date,—it being difficult to conceive of a worse choice of engine for a heavy gradient, particularly when contemporary coupled locomotives of English manufacture were giving excellent results,—bar frames almost vanished from British practice until the turn of the century, when they again appeared in a series of freight engines ordered from Baldwins and the American Locomotive Co. to fill a serious shortage of motive power on several English Railways. These engines again were scrapped very rapidly, and today bar frames are practically non existent in England, being used only in locomotives built for export.

On the Continent as well they met with little favour at first. This was not due to a lack of experience with them, for many of the first engines ordered for Continental railways came from the Bury, Baldwin

and Norris Works. All of these had bar frames, but the sandwich frame and later the plate frame supplanted them, and it was many years before bar frames reappeared in Continental locomotives, and then chiefly in Russia, Germany and parts of Central Europe. And the fact remains that with these exceptions, even in the most modern type of locomotive, the use of plate framing generally distinguishes European from American practice, and it is interesting to observe that in spite of their American background, Harrison, Winans & Eastwick should have been influenced from the beginning of their Russian experience with factors that dictated an essentially European type of construction.

To revert from this digression to the Russian engines, it will be seen that in the case of the 4-4-0, Fig. 3, the equalizing gear has been developed a step further. A large spring now takes the place of the beam and spring in the "Gowan & Marks". Eastwicks bolted stub end replaces the more complicated gib and key in the straps on the rods; the round or haystack type of firebox gives place to a square firebox with a raised casing; the main rod engages the first instead of the second pair of driving wheels and the whole engine has been greatly simplified and improved, resulting in a most creditable and thoroughly up to date machine, the equal of any of its contemporary locomotives in the United States.

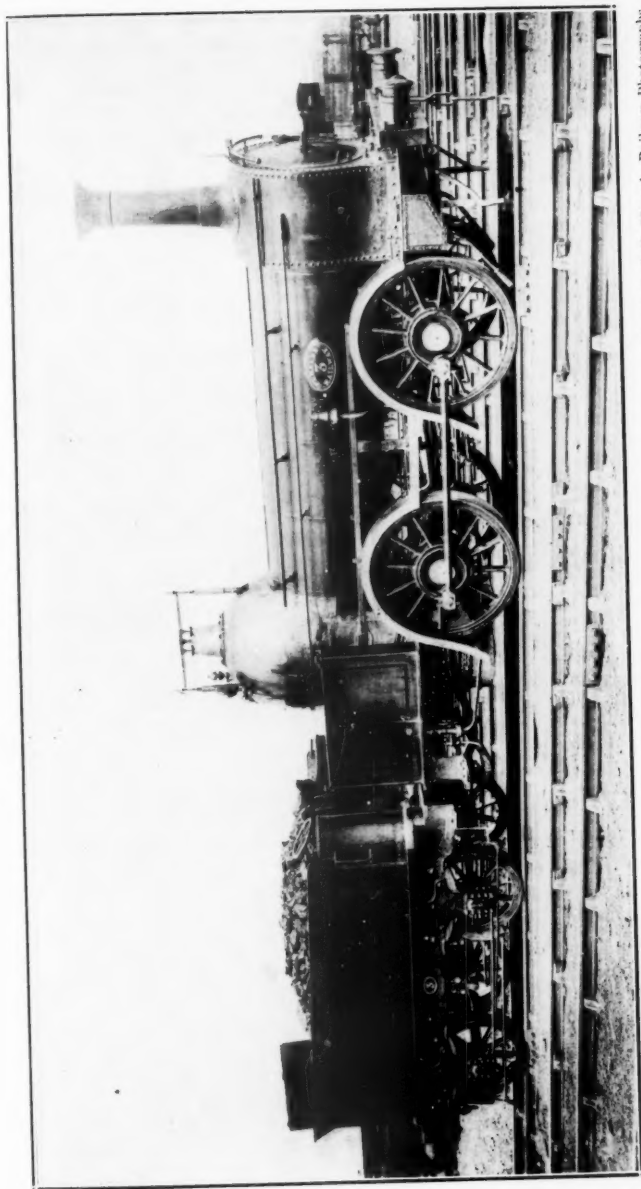
With so great an advance all round it is regrettable that Harrison, Winans & Eastwick stopped short of doing away with that bug bear of early American practice, the short wheel base truck with all its disadvantages and unmechanical character. Its use complicated a straight forward lay out; made inevitable inclined cylinders; and spoiled the appearance of the front end of their engine as completely as it did all those American locomotives of the period to which it was fitted.

It may be remarked in passing that William Mason, of Taunton, Mass., is usually considered to have been the first builder in the United States to spread the wheel base of the leading truck so as to allow the use of horizontal cylinders. While he undoubtedly did more than any other builder of the time to introduce these two improvements into general use, he can hardly be held to have originated the practice. He started building locomotives in 1852. In 1851 Norris Bros. had already delivered to the Syracuse and Utica Railroad a 4-4-0, the "North Star", Fig. 7. The drivers of this engine were very small and the whole machine was hung very low, but it had a long wheel base truck and horizontal cylinders.

William Swinburne, in the same year that Mason started building, sent his "America", a 4-4-0, to the Buffalo and Corning Railroad. This engine again had both these features. (See page 28 Bulletin 11 1926).

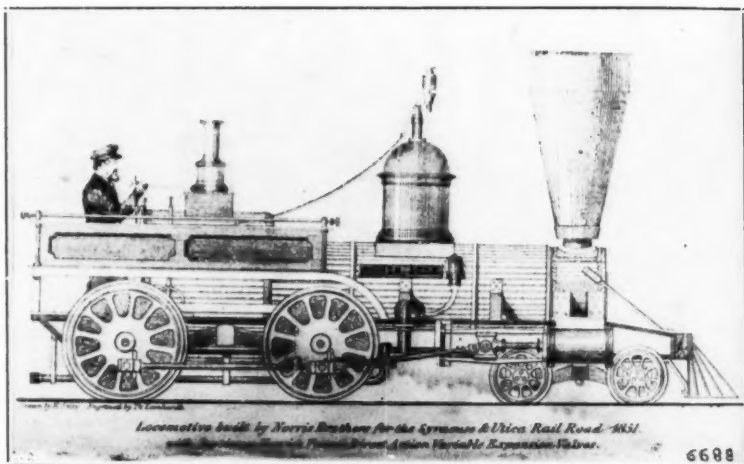
Seth Wilmarth, up to 1852 a consistent user of the short wheel base truck in his famous inside connected "Shanghais", built the 4-4-0 "Antelope" for the Pennsylvania in that year. It was a radical departure from his previous locomotives, as in it he used outside horizontal cylinders, long wheel base truck and drivers of the unusual size of 78 inches in diameter.

These three instances cannot, of course, detract from the great influence Mason had on improving the design and the appearance of the



An Example of Bury's 4-coupled standard freight engine.

Courtesy of F. Moore's Railway Photographs.



Courtesy of F. Moore's Railway Photographs.

locomotives of his day, but they do show that other builders had come independently to appreciate the advantages of the two improvements that are usually credited to him. It is only surprising to find that in spite of them all it took several years for these improvements to become general, and that inclined cylinders, which were probably the most objectionable of the two, continued to be used well into the 1870's, long after the short truck itself was considered obsolete.

In both the St. Petersburg engines a rod leading from the right hand side of the firebox to a lever pivoted in the plate frame just back of the bumper beam will be noted. This rod controlled the so called Eastwick reversing gear. Stephenson's link motion was only just beginning to be generally known in the late 1840's. Rogers was the first to introduce it into the United States in 1849. Baldwin opposed it until 1854 and only adopted it as standard in 1857. Before this, each builder had his own variety of valve gear, usually elaborate modifications of the gab motion or variable cut off arrangements that were costly to build and to maintain in service. Eastwick's gear overcame their disadvantages in a simple and direct manner, and, while it did not allow a full expansive working of the steam, the advantages of which were not generally insisted upon at the time, it was nevertheless one of the simplest and most effective reversing gears in use before the Stephenson link motion became standard.

The gear consisted of a moveable valve seat, and instead of reversing the excentric or the valve, the seat itself was moved by the lever above referred to. The valve was permanently attached to the excentric and diagonal passages were cast in the moveable valve seat. In forward position one set of ports in the moveable valve seat registered directly with the corresponding cylinder ports. When reversed, the valve seat was moved backwards, bringing the new set of ports under the valve, the diagonal run of the steam passages from these ports through the body of the moveable valve seat feeding the cylinder ports in opposite order, and so bringing about a backward movement of the engine.

The principal defects of the gear lay in the greatly increased clearance losses, especially when in reverse. It also prevented the use of a long lap on the slide valve, as any lead in forward gear was obtained at the expense of delay in the opening of the valve when in reverse.

The engine shown in Fig. 4 is worth remarking. It is especially interesting to come across a 2-6-0 design, however rudimentary in character, as early as 1844, when it is remembered that the first true "Mogul" is usually taken to be the engine that Rogers delivered to the New Jersey Railroad and Transportation Company in 1863.

A very interesting point in the design is the simplification of the bogie arrangement. The bogie is controlled by a radial beam in the same manner as it was to be in the later Bissel truck, but this beam seems to combine the function of radial arm and equalizer between the bogie wheels and the first pair of drivers, the system seeming to depend on the one large spring visible behind these latter, thus avoiding the separate radial arm and equalizing gear found in the usual 2 wheeled leading truck that later became so common. The same principle is seen in the modern trailing truck developed on the Pennsylvania.

The slide bars of this 2-6-0 are peculiar. There is no guide yoke. Instead, two rather massive frames are bolted to the rear end of the cylinder and the slide bars fit inside them. The straight running boards, broken for the driving wheel splasers, and the deck whose side sheets are outside the drivers, find their counter-part in British practice of the day, and the peculiar stack fitted to both classes with the box like chamber at its base recalls a Baldwin fitment of the same kind in 1847, as well as a detail of Swedish design still in use. No drawings of the stacks internal arrangement are known, but it is probable that the chamber contained a cone or spark arrester instead of this being placed in its more usual position at the top of the stack.

The peculiar horizontal location of the whistle on the front of the raised firebox casing; the lack of brakes; cab; cowcatchers and headlights; what look like two throttles, one probably the whistle lever; are all features out of the common. There is a further point of some importance—both classes of engines seem to have been supplied with one design of boiler, a big step toward cheapness in manufacture and maintenance, probably one of the earliest if not the very first instance of the kind in a large locomotive building contract.

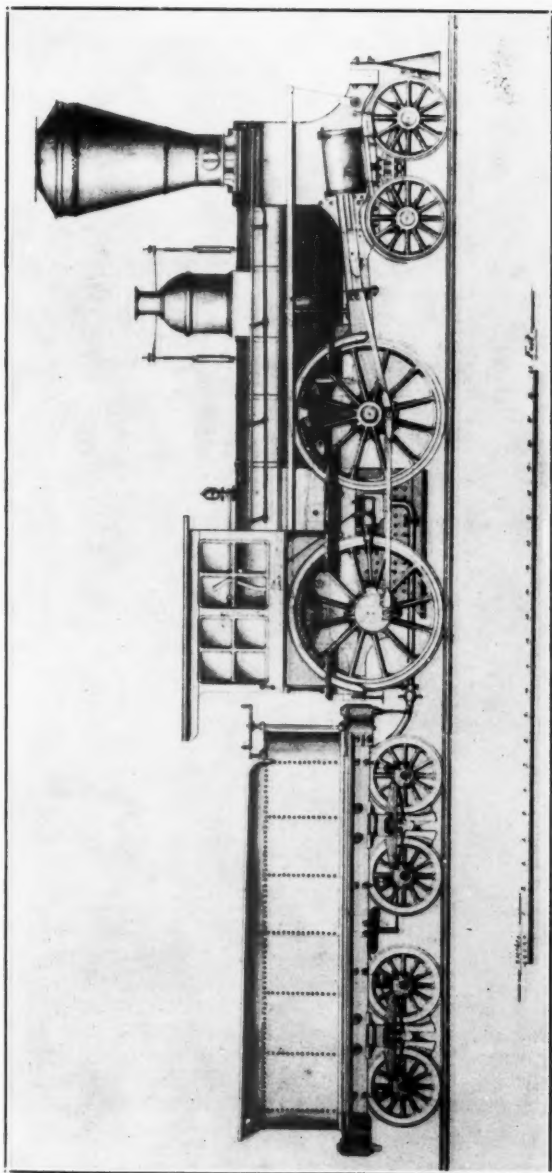
The illustrations of these two locomotives are reproduced from two brilliantly coloured pen and ink drawings dated 1851, that of the 4-4-0 being signed "Schmidt" and the 2-6-0 "Saburin", the originals being in the collection of Mr. C. F. Dendy Marshall.

Fig. 9 is a photograph of a sepia drawing belonging to the author. It is undated and unsigned. The technique of the pen work in this drawing and in the other two is identical, and there are such obvious and striking points of similarity between all three locomotives as to leave no doubt but that the third is also a Harrison, Winans & Eastwick design.

It has been impossible so far to identify the engine. The question naturally arises whether it was ever built or whether it was only a proposed machine that never got further than the draughting office. Even in the latter case, however, it is worth trying to determine its date, as it is a remarkable locomotive from many points of view.

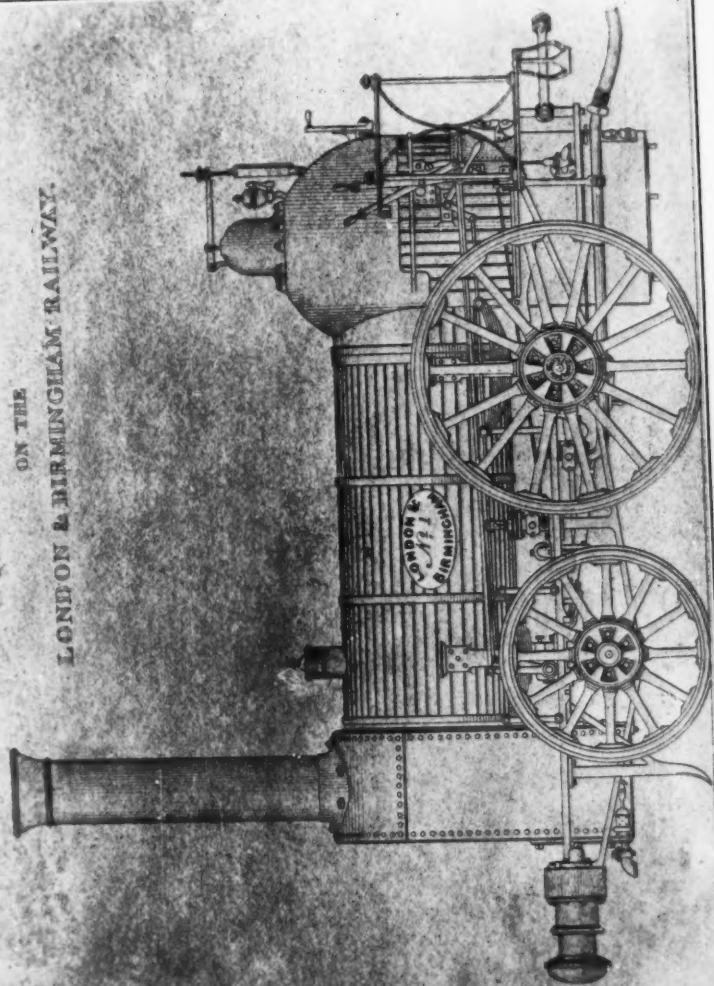
It will be recalled that the first St. Petersburg contract was a building one, ending in 1851. Under the second contract new construction doesn't seem to have been stipulated. If the engine was built under the first contract therefore it must have appeared before the end of 1851. The use of detail in it that was common to the first two classes built, and that was probably used in all engines throughout the first contract, seems to support this view.

As against this assumption there is the evidence of a great advance in design when compared with the earlier locomotive. The boiler is longer and larger in diameter; the raised firebox casing has disappeared; the whistle is in a conventional position; the dome, now fitted with two spring balance safety valves but with the same dome cover, has been moved from the top of the firebox to the front portion of the boiler barrel; a large and commodious cab has been provided, as well as a form of cowcatcher; and a feed pump is fitted, driven by an excentric on the hub of the rear coupled wheel.



Photograph of sepia drawing from Richard E. Pennoyer Collection. Drawing undated and unsigned.
Believed to be Harrison, Winans & Eastwick design, executed prior to 1851.

PASSENGER ENGINE
ON THE
LONDON & BIRMINGHAM RAILWAY.



An example of Bury's standard passenger locomotive.

The driving wheels, unlike those in all the other locomotives illustrated, seem to have counterbalances. They are wider spaced and larger in diameter than in the earlier 4-4-0, and the equalising system now appears in its final perfected form, each pair of drivers having its own pair of springs. The stack with its great height of 17 feet above rail level no longer has a chamber at its base, but takes a form that foreshadows almost exactly what the Radley and Hunter stack was to be some years later.

These various characteristics, interesting as they are, can hardly be advanced by themselves in an attempt to fix the date of the design or construction of this locomotive. They all could have been developments that took place after the termination of the first contract. But there is one detail in the engine that is probably of more assistance than any other in settling the question, and that is the Eastwick reversing gear.

It can be reasonably assumed that this gear could hardly have held a high place in the opinion of a designer aware of the merits of the Stephenson link motion. But the prejudice against the latter prevented its general adoption until a year or two after the end of the first Harrison, Winans & Eastwick contract even in England, and it took still longer to gain approval in the United States.

It can be argued therefore that as its merits were not well known in Russia by 1851, but probably became so very shortly after, and that as no new locomotives were built by Harrison, Winans & Eastwick after that date, the locomotive in question must have been at least designed before the end of that year.

If this reasoning is correct the locomotive shown in Fig. 9 is an important, if hitherto unknown link, in the evolution of the "American" or 4-4-0 type. Designed abroad not later than 1851 by an American firm for service on a foreign railway, its main dimensions and its principal features are nevertheless of such an outstanding character as to justify it being ranked among the very finest American locomotives then in existence, the excellence and modern character of design that so distinguished Harrison, Winans & Eastwick's first St. Petersburg machines, being fully as evident in this unidentified locomotive, presumably the last type built under their Russian Contract.

The Lackawanna and Bloomsburg Railroad

By F. STEWART GRAHAM

THE Lackawanna & Bloomsburg Railroad was chartered April 5th, 1852. Though only 80 miles long, and connecting Northumberland and Scranton, in Pennsylvania, it was and still is the point of origin of a vast anthracite tonnage handled by the Lackawanna Railroad, with which it connected at Scranton, to form a direct route to New York and to Buffalo and the west.

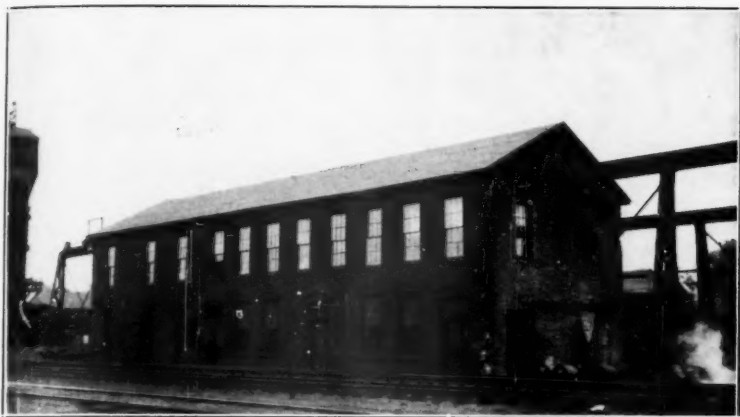
From its earliest days, this coal traffic was of prime importance in the development of the road. Passenger traffic, too, was heavy until the advent of the automobile and truck, as was evidenced by five through passenger trains in each direction, daily. The line is a single track from Northumberland to Bloomsburg and double track from there to Scranton, and prior to about 1900 it was operated with trains running on the left hand track because so many collieries were located on that side of the north bound track, and coal trains could be pulled out to Scranton without crossing over a main line track to get to a right hand track.

Kingston, Pa., about 18 miles southeast of Scranton was the largest and most important point on the line, except, of course, the northern terminus, Scranton. Traffic bound for Wilkes-Barre was transferred at Kingston to trolley line. Large anthracite collieries were in the immediate vicinity of Kingston. The main shops, a 14-stall engine house and a large classification yard were located there, and coal from the surrounding mines was assembled into trains for Scranton and beyond. Connection was made with the New Jersey Central at Taylor, with the Reading at Bloomsburg, and with the Pennsylvania at Northumberland.

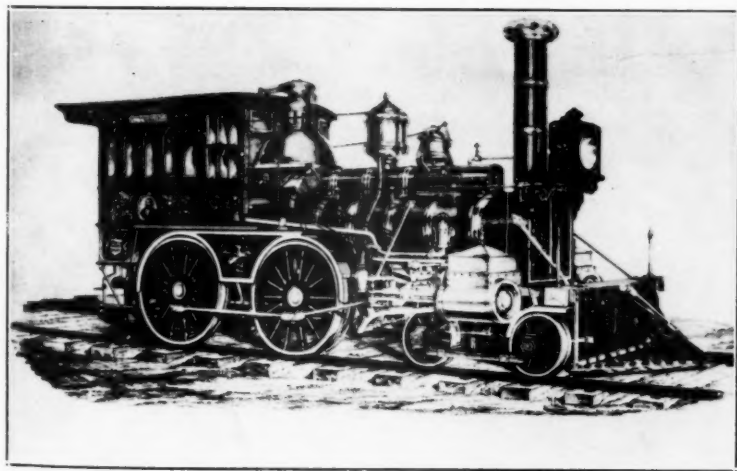
The shops consisted of erecting and repair shops, foundry, blacksmith and forging shop, pattern, car and paint shops, complete in every respect for the construction and maintenance of motive power and rolling equipment.

Incidentally, the L. & B. engines were widely known to be among the best equipped and maintained in that part of the country. Ever alert to improvements, the motive power department introduced many to the Lackawanna System through the Kingston engines. The use of magnesia boiler lagging, engine truck brakes, two injectors per engine, the pneumatic bell ringer and the trailer truck were adopted well in advance of other divisions. Locomotive painting was complete and thorough, the paint shop foreman ever refusing to paint a passenger engine unless he was guaranteed two weeks in which to do it. The preliminary cleaning of the bare metal, numerous coats of primer, paint and varnish, and the generous application of gold leaf required time and produced a work of art and permanence, a happy contrast to the spray-gun job of today.

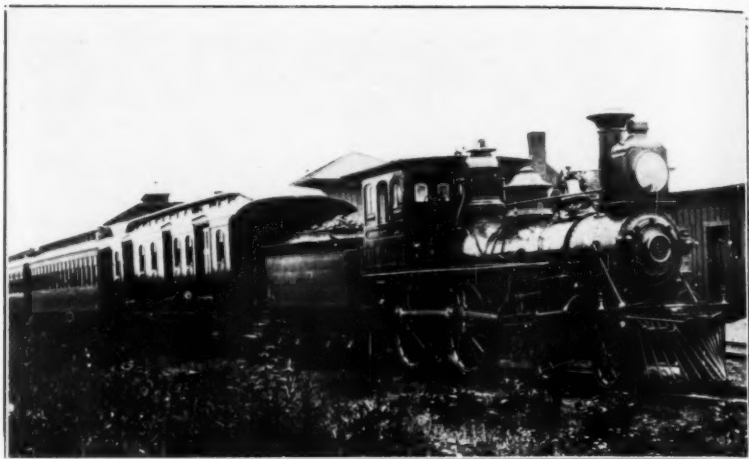
The construction of engines was started in 1871, and continued about 25 years, during which time freight and passenger engines were built for the L. & B., and passenger engines were built for the Main Line of the D. L. & W., with which line the L. & B. merged in 1873. Most



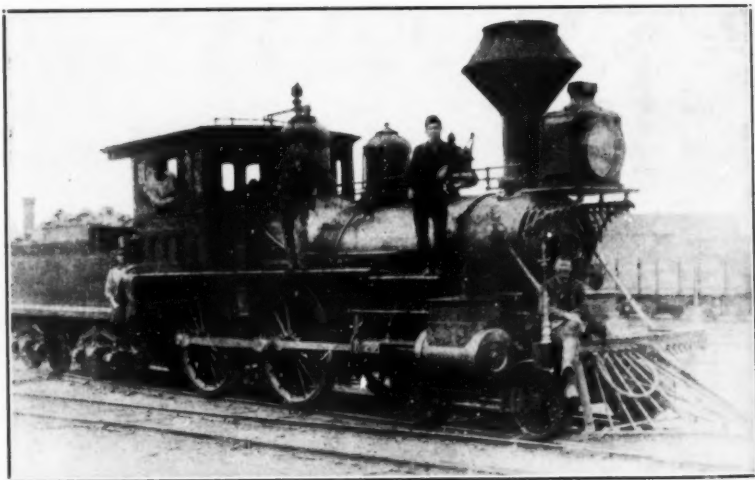
Office and storeroom. Last of the original Kingston Shop buildings.



The "Wyoming"—Norris & Son, 1857, with Phleger's Patent boiler.



The "Colonel Wells" as Cayuga Div. #2.



Locomotive "Scranton" #205.

notable of these Kingston engines were the 240 class (240-246), a highly successful passenger 4-4-0, with wide firebox, 19x24" cylinders and 69" drivers, built under the supervision of Master Mechanic Charles Graham, Jr., who had succeeded his father in 1885, and both of whom were greatly responsible for the development of culm-burning fireboxes on the Lackawanna.

Culm, or "column" as it was generally called, is the waste and small sizes of anthracite produced in cleaning and preparing hard coal, and until the late 1870's had not been burned successfully in locomotive fireboxes. It was then discovered that by employing a large grate area and having a relatively shallow fire bed, this material made an ideal fuel, not alone from the standpoint of heating, but also of cleanliness. This latter quality was not stressed for some time, and then only briefly, as the hard coal producing railroads turned to soft coal for fuel because of its much lower cost, and pure anthracite, as engine fuel, passed into history.

The use of the wide firebox necessitated placing the cab ahead of it, resulting in the "camel back" or "Mother Hubbard" engine. Why the latter name was applied is still a question. To thus separate the engineer and fireman caused a dangerous condition, for it permitted the possibility of a train being in charge of a man, who unbeknown to his fireman, might be injured or taken sick and not discovered until an accident occurred. The hue and cry raised by such possibilities brought about an Interstate Commerce Commission ruling against such practice, and the center cab was discontinued. The cab was then placed behind the firebox, accomplished by lengthening the engine frames. This, of course, would have come to pass eventually, as the modern firebox is but slightly narrower than the erstwhile "wide firebox" and has made it necessary to locate the cab almost entirely behind the firebox.

One very serious source of danger in the center cab engine was the possibility of a broken driving rod, either side or main. When such an accident happened, the broken section of the rod, revolving with terrific force, would crash through the cab floor, often stripping the side of the engine and perhaps tearing out the front end of the firebox, so that a rod breaking on the right side exposed the engineer to the double hazard of being crushed by the rod or scalded by steam and hot water. Accidents of this nature, however, were not common.

In rebuilding the narrow firebox engines to burn culm, the boiler was necessarily raised in order for the new firebox to clear the driving wheels. This left a considerable space between the top of the cylinder saddle and the bottom of the smokebox, if the old cylinders were to be used, as was generally the case. There were several methods of overcoming this difficulty. On engines "Susquehanna" and "Chas. Graham" a special smokebox was made. The upper part of this was the same size as the original, but the bottom, instead of being round, dropped down to reach the cylinder saddle. The most common practice, however, was to cast a filler block, or "false saddle", to fit in between the saddle and smokebox. These false saddles were often cleverly concealed by covering the entire saddle with sheet iron.

Construction was started on one or two moguls, the plans for which

called for a narrow firebox engine. After the cylinders had been cast, it was decided to use wide fireboxes, and instead of using the false saddle, the smokebox was made in the form of an oval, the sides being almost flat, the radii of the top and bottom arcs being the same as those of the boiler and cylinder saddle.

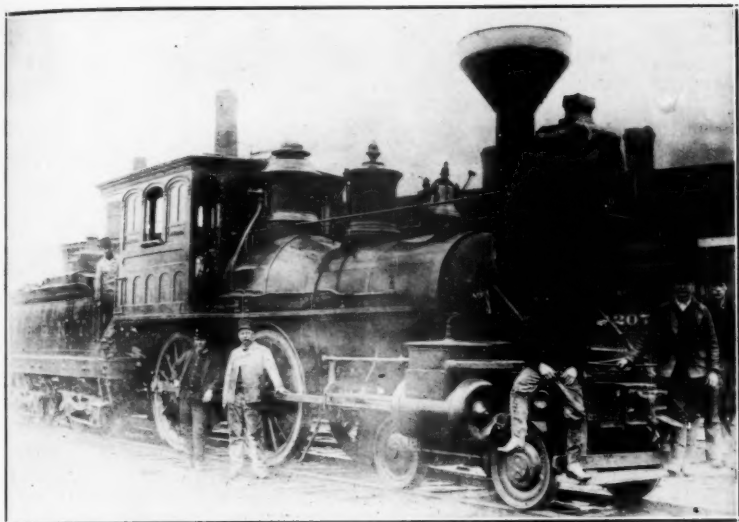
In 1885, engine "Susquehanna" was rebuilt to burn culm, and was the first passenger engine on the D. L. & W. to be so changed. The culm-burning firebox in this case proved to be very efficient, and other engines, passenger and freight, were subsequently changed, and new locomotives were built with the wide firebox.

It has seemed appropriate to include these few paragraphs on the wide firebox, because so much experimental work in their development was done on the L. & B. and to explain the why and wherefore of the center cab, which seems to be a question in the minds of many interested in locomotives. A fact not generally appreciated is that the development of the so-called semi-wide or modified Wootten firebox, which ultimately superseded the old firebox located entirely between the frames, was due to the success of the wide firebox for hard coal and the experimental work done in connection with that style of firebox.

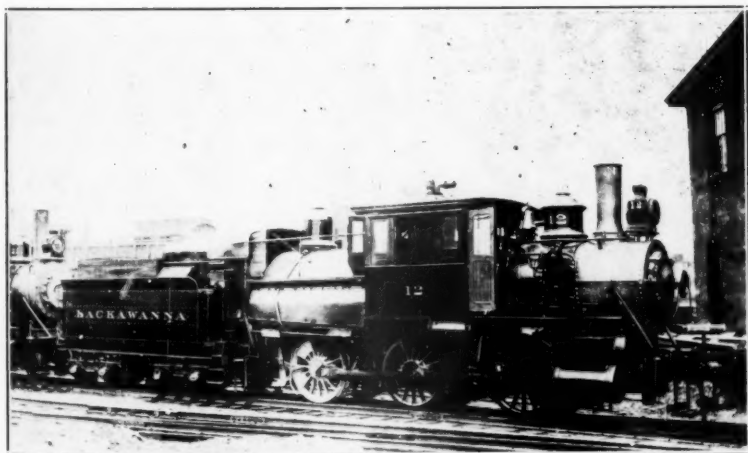
Locomotive Engineering, in October 1900, said in part, relative to Mr. Graham's work in connection with the wide firebox:—"Numerous attempts had been made to burn anthracite coal in locomotive fireboxes, particularly by Milholland on the Reading Railroad, but the efforts were not much of a success. Zerah Colburn had designed an engine with a wide firebox extending over the frames, with a view of providing large grate area necessary for burning anthracite coal. Railroad men as a rule did not like that form of firebox, but Mr. Graham perceived its possibilities and gave it a trial, devoting close personal attention to its performance. He effected a variety of improvements on the firebox and it became a decided success for the burning of anthracite, and is still largely used by that road. (D. L. & W.). The people call that form of firebox the "Mother Hubbard". Towards the end of the seventies, Mr. Wootten, of the P. & R., put a combustion chamber in a Colburn firebox and secured a patent on the combination. A company was formed to push this patent and it was exploited under the name of the Wootten firebox. This was done so effectually that today all fireboxes extending over the frames are spoken of as Wootten, although most of them are merely Colburn fireboxes with Graham's improvements."

To get back to the main topic of this article, there were 19 engines in service in 1864, including nine 4-4-0 type, 5 ten-wheelers, four 0-8-0 type with Baldwin flexible beam trucks, and one Cooke 0-4-2. These engines had been obtained from various sources. Engines 1 and 2 were built by Swinburne, No. 5 was purchased from the P. & R., No. 8 was built in 1857 by Norris and Son, and equipped with a Phleger boiler. The ten-wheelers were from Baldwin's. No. 14 was built originally for the Vermont Central Ry., later sold to the North Pennsylvania Railroad, and purchased by the L. & B. in 1863. The No. 18 was built for the Schuylkill Haven and Lehigh R. R., from whom it was probably purchased.

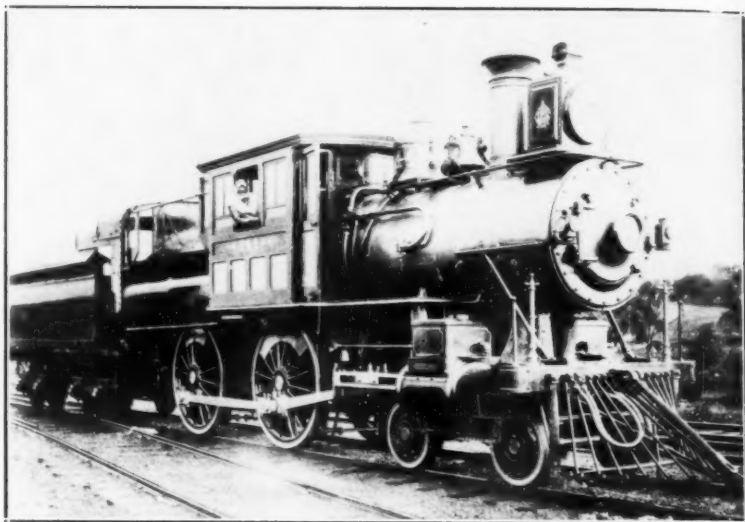
In 1866, the mogul type, which became standard for freight service



S. B. & N. Y. #7, formerly "Payne Pettebone" on L. & B.



D. L. & W. #12, formerly #216, rebuilt for yard service.



Courtesy of T. T. Taber.

D. L. & W. 244 (later 930) Culm burning passenger eight wheeler built at Kingston Shops.



D. L. & W. #928, Main Line passenger engine built at Kingston. Formerly #245.

Road
No.
1
1-201
2
2-202
3
3-223
4
4-204
5
5-225
6
6-224
7-237
207
8-208
208
9-209
10-210
11-215
12
12-205
13-216
216
14
14-203
15
15-222
16-213
17-217
217
18
18-226
19-218
20-214
21-219
22-220
220
23
23
23-206
24-221
221
25
25-211
26
26
26-233
27
27-227
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28-228
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29-229
229
30-230
230
31-231
231
32-212
232
232
233
234
23

Road No.	Name	Type	Builder	Date	Cyls.	Dia. Dri. Center	Remarks
1	Susquehanna	4-4-0	Swinburne	pr. 1864			Scrap 1870
1-201	Susquehanna	4-4-0	Kingston Shops	1871	16	x22 55½	Rebuilt culm burner, 1885
2	Nanticoke	4-4-0	Swinburne	pr. 1864			To Utica Div. #9, 1871. Scrap
2-202	Chas. Graham	4-4-0	Kingston Shops	1871	16	x22 55½	Rebuilt culm burner, 1886
3	Shawnee	4-4-0	D. C. & Co.	pr. 1864	15	x22 57	To Cayuga Div. #3, 1878
3-223	Berwick	2-6-0	Kingston Shops	1880	13	x24 45½	Rebuilt culm burner, 1896
4	Columbia	4-4-0	Norris & Son	pr. 1864	13	x24 51	Scrap 1875
4-204	Plymouth	4-4-0	Kingston Shops	1875	16	x24 56	
5	L. Hakes	4-4-0	Norris & Son	pr. 1864	13	x24 51	Bought from P. & R. to #26, 1878
5-225	Shawnee	2-6-0	Kingston Shops	1881	19	x24 45½	To Buffalo Div. #125, 1898
6	Col. Wells	4-4-0	D. C. & Co.	pr. 1864	15	x22 57	To Cayuga Div. #2, 1878
6-224	Rupert	2-6-0	Kingston Shops	1880	19	x24 45½	To Buffalo Div. #126, 1898
7-207	Montour	4-4-0	D. C. & Co.	pr. 1864	16¾	x22 57	Scrap 1892
207	Montour	4-4-0	Kingston Shops	1892	18	x24 60	
8-208	Wyoming	4-4-0	Norris & Son	1857	16	x24 56	Scrap 1888
208		2-6-0	Kingston Shops	1888	19	x24 45	culm burner
9-209	Northumberland	4-4-0	Norris & Son	pr. 1864	16	x24 56	Scrap 1890
10-210	Pittston	0-4-2	D. C. & Co.	pr. 1864	14	x22 38½	Scrap 1899
11-215	John I. Blair	4-6-0	Baldwin #1077	1862	18½	x22 43	
12	Colonel Paxton	0-8-0	Baldwin #658	1855	16	x20 38½	Scrap 1874
12-205	Scranton	4-4-0	Kingston Shops	1874	16	x24 56	
13-216	Major McNeil	4-6-0	Baldwin #1105	1863	18½	x22 43	Scrap 1898
216		2-6-0	Kingston Shops	1898	19	x24 50	culm burner
14	Civilizer	0-8-0	Baldwin #450	1851	16	x22 55½	Scrap 1870
14-203	David T. Bound	4-4-0	Kingston Shops	1872	16	x22 55½	Renamed Bloomsburg, 1876
15	Luzerne	0-8-0	Baldwin #768	1857	17	x22 38½	To #26, 1878. Scrap 1879
15-222	Luzerne	2-6-2	Kingston Shops	1878	18	x24 45½	Note type
16-213	Erie	4-6-0	Dickson #4	1863	17	x22 50½	
17-217	Monitor	4-6-0	Baldwin #1156	1863	18½	x22 48	Scrap 1888
217		2-6-0	Kingston Shops	1889	19	x24 45	culm burner
18	Thomas Beaver	0-8-0	Baldwin #1172	1863	20	x24 38½	To #27, 1881. Scrap 1885
18-226	Nanticoke	2-6-0	Kingston Shops	1881	19	x24 45½	Reb. culm burner, 1896. To
19-218	Kingston	4-6-0	Baldwin #1275	1864	18½	x22 48	
20-214	James Archbald	4-6-0	Dickson #7	1865	17	x22 50½	Reb. culm burner, 1888
21-219	John Brisbin	2-6-0	D. C. & Co.	1866	18	x24 50½	
22-220	Moses Taylor	2-6-0	Dickson #44	1869	18	x24 48	Scrapped 1899
220		2-6-0	Kingston Shops	1899	19	x24 50¾	culm burner
23	Wm. E. Dodge	2-6-0	Dickson #45	1869	18	x24 48	To Utica Div. #15, 1871; To
23	Samuel Hoyt	2-6-0	Dickson #95	1872	18	x24 48	To Utica Div. #18, 1873 To
23-206	D. G. Dreisbach	4-4-0	Kingston Shops	1873	16	x24 56	
24-221	Samuel Sloan	2-6-0	Dickson #56	1870	18	x24 48	Scrap 1896
221		2-6-0	Kingston Shops	1896	19	x24 50	culm burner
25	Percy R. Pyne	2-6-0	Dickson #57	1870	18	x24 48	To Utica Div. #16, 1871; To
25-211	Danville	0-6-0	D. C. & Co. #816	1872	17	x22 41	Reb. culm burner, 1893
26	Payne Pettebone	4-4-0	Kingston Shops	1876	16	x24 56	To S. B. & N. Y. #7, 1877
26	Luzerne						From #15, 1878. Scrap 1879
26-233	L. Hakes						From #5, 1881. Scrap 1896
27	Thomas Beaver						From #18, 1881. Scrap 1895
27-227		2-6-0	Kingston Shops	1885	19	x24 45	To Buffalo Div. #127, 1898
227		2-6-0	Dickson #254	1880	18	x24 50	From Main Line #141, 1898
28		2-6-0	Dickson #324	1882	18	x24 50	From Buffalo Div. #30, 1898
28-228		2-6-0	Kingston Shops	1883	19	x24 45	To Buffalo Div. #128, 1898
228		2-6-0	Dickson #73	1871	18	x24 50	From M. L. #128, 1898
29-229	Abram Nesbitt	2-6-0	Kingston Shops	1882	19	x24 45	To Buffalo Div. #129, 1898
229		2-6-0	Dickson #255	1880	18	x24 50	From M. L. #142, 1898, culm
30-230		2-6-0	Kingston Shops	1884	19	x24 45	To Buffalo Div. #130, 1898
230		2-6-0	Dickson #66	1871	18	x24 50	From M. L. #125, 1898 culm
31-231		2-6-0	Kingston Shops	1884	19	x24 50	To Buffalo Div. #131, 1898
231		2-6-0	R. K. & G.	1856	18	x24 50	Reb. Scranton, 1874. From
32-212		2-6-0	Cooke #1544	1884			Changed to 0-6-0
232		2-6-0	Kingston Shops	1886	19	x24 45	culm burner to #225, 1898
232		2-6-0	Scranton Shops	1872	18	x24 50	Reb. culm burner 1888. From
233	L. Hakes	4-4-0					From #26, 1886
234		2-6-0	Kingston Shops	1887	19	x24 45	culm burner. To #226, 1898
	Potomac	4-4-0	Unknown		13	x16 36½	Brought up from the South
23	ex-D&H. Kiitta Tinny	2-6-0	Dickson	1875	18	x24 50	From M. L. #23, 1898, culm

Engines marked built prior to 1864 were in service
construction not available.

Remarks

rap 1870

ebuilt culm burner, 1885

o Utica Div. #9, 1871. Scrap 1879

ebuilt culm burner, 1886

o Cayuga Div. #3, 1878

ebuilt culm burner, 1896

rap 1875

ught from P. & R. to #26, 1881, scrapped 1897

o Buffalo Div. #125, 1898

o Cayuga Div. #2, 1878

o Buffalo Div. #126, 1898

rap 1892

rap 1888

lm burner

rap 1890

rap 1899

rap 1874

rap 1898

lm burner

rap 1870

enamed Bloomsburg, 1876

o #26, 1878. Scrap 1879

ote type

rap 1888

lm burner

o #27, 1881. Scrap 1885

eb. culm burner, 1896. To #224, 1898

eb. culm burner, 1888

rapped 1899

lm burner

o Utica Div. #15, 1871; To M. & E. Div. #92, 1874

o Utica Div. #18, 1873 To M. & E. Div. #105, 1874

rap 1896

lm burner

o Utica Div. #16, 1871; To M. & E. Div. #93, 1874

eb. culm burner, 1893

o S. B. & N. Y. #7, 1877

om #15, 1878. Scrap 1879

om #5, 1881. Scrap 1891

om #18, 1881. Scrap 1885

o Buffalo Div. #127, 1898

om Main Line #141, 1898

om Buffalo Div. #30, 1882. To M. L. #156, 1883

o Buffalo Div. #128, 1898

om M. L. #128, 1898

o Buffalo Div. #129, 1898

om M. L. #142, 1898, culm burner

o Buffalo Div. #130, 1898

om M. L. #125, 1898 culm burner

o Buffalo Div. #131, 1898

eb. Scranton, 1874. From M. L. #45, 1898

hanged to 0-6-0

lm burner to #225, 1898

eb. culm burner 1888. From M. L. #61, 1898

om #26, 1886

lm burner. To #226, 1898

rought up from the South during the Civil War. Had "hook" mo

om M. L. #23, 1898. culm burner Not reno'd to Bloom series

to 1864 were in service November, 1864. Exact date of

Ren'd 1899	Remarks	Scrapped
102	To 136 and 149	1910
101	To 135. Wrecked 1905	
108		1901
512		1908
104		Sold 1901
509		1902
109		1899
511		1902
480	Sold G. T. & W. 1908	
502		1902
415		1901
105	Sold Schoharie Valley #5	
604	To 0-6-0 #12, 1912	1915
103	To #137	1906
168		1902
121		1904
501	To #510 and #513	1913
513		1908
416		1901
120		1901
411		1907
601		1919
220		1903
248		
106	Sold Bloomsburg & Sullivan R. R.	
605	To 0-6-0, #6, 1913	1923
256		1909
11		1910
2	Sold 1899	
505		1904
344		1901
328	To Buff. Div. #90, 1898	1901
508		1902
368		1901
510		1902
345		1901
506		1903
253		1910
507		1902
257	Reb. culm burner, 1890	1910
28		1907
504	To #514, 1906	1909
264		1912
503	To #511, 1906	1908
402	Scrap 1883	1913

"hook" motion
om series

date of



was first placed in service with the engine "John Brisbin," built by Danforth, Cooke & Co., the same year in which this type was tried out by the Morris & Essex R. R. The only exception to the mogul type for freight service, built after this date, was the engine "Luzerne", built at Kingston, in 1878. This was a 2-6-2, one of the country's first Prairie types, and the fore-runner of the trailer truck on the road. This design of trailer was later used on the Lehigh Valley in converting their engines "Ant" and "Bee" from 2-10-0 to 2-8-2 type, which change was made because of their excessive rigid wheel base.

The first engines built at Kingston were the "Susquehanna" and the "Charles Graham", built in 1871 to replace the original 1 and 2, named "Susquehanna" and "Nanticoke". The former was scrapped, the latter was sold to the Utica Division, becoming their No. 9. After this time, all L. & B. engines with one or two exceptions were built at Kingston.

In 1886, engines 1 to 32 were renumbered 201 to 232, not respectively, to follow in sequence the road numbers of the Main Line engines, which ran from 1 to 200 and 235 to 248. They were again renumbered in 1899 when the D. L. & W. and all of its branches were numbered under one general system.

The majority of freight engines on this division, as will be noted from the accompanying table, had 19"x24" cylinders and driving wheels with 45" centers, giving them an advantage in tractive power of many Main Line moguls, which had 18"x24" cylinders and 50" drivers. In 1898, in order to obtain the benefit of this higher tractive effort on the grades of the Buffalo Division, seven of the Bloomsburg Division moguls were transferred to Buffalo, and were replaced by a like number from the Main Line. In this transaction, the Main Line received a number of practically new culm burning moguls from the Buffalo Division, but the "Bloom" was a heavy loser, not only from tractive power loss, but also in engines received, which had not been maintained to the high standards of the L. & B. Because of their small drivers, the Bloom engines were known as "creepers" on the Buffalo Division.

Until the middle 1890's, coal was handled in the 4-wheel coal car, or "jimmy", the Kingston district mines loading upwards of one thousand per day.

From 1864, the date of the writer's earliest official records, the superintendents on this line were as follows;—H. A. Fonda, to February 1869, David T. Bound, to July, 1875, and William F. Hallstead. Master Mechanics were Charles Graham, Sr., to 1885, and Charles Graham, Jr., to August 1899.

At the close of the century, President Samuel Sloan was retired, and the incoming president brought an almost entirely new personnel and radically changed operating conditions over the entire system. The Bloomsburg Division became the Bloomsburg Branch, and for several years the Kingston Shops were used for the manufacture of frogs and switches, all locomotive and car work being transferred to Scranton.

Eventually the Kingston Shops were abandoned, and all buildings except the old office and storeroom were dismantled. Today, the only

reminder of this once important division point is a modern engine house, coaling station and ash pit, handling engines employed in "mine run" service, and the yard where coal trains are made up for trans-shipment to the large classification yards at Seranton.

The following corrections are offered in connection with the writer's article on D. L. & W. 10-wheelers, which appeared in Bulletin No. 43.

pg. 40. 6th line from bottom should read "32-28"

pg. 41. Line 4, should read "46-43, Black Hawk, DC&CO, 1856, etc"

pg. 41. No. 85 renamed A. J. Odell

Mr. F. Stewart Graham, Bennington, Vermont, the author of this contribution is searching for information on the early locomotives of the Ohio & Mississippi and Oil City & Allegheny Railroads. If any of our members have any data on these roads, Mr. Graham will appreciate hearing from them.

LACKA, & BLOOMSBURG R. R. CO.

STATEMENT OF MATERIALS USED BY EACH ENGINE DURING THE MONTH ENDING FEBRUARY 29, 1905.

NAMES OF ENGINES	No. of Engines	Miles Run of Oil.	Pints of Oil.	Miles run to one Pail.	Pounds of Tallow.	Miles run to one lb. Tallow.	Pounds of Waste & Tallow.	Cost of Oil, waste & Tallow.	Cost per mile of Oil, waste & Tallow.	Cost of Repairs of Engines.	Cost per mile of Repairs.	Head of Light Oil 1 pint.	Head of Fuel 1 pint.
SUSQUEHANNA	1	2710	80	33.87	43	63.02	38	\$34.43	1 27-100	268 28	9 89-100	24	5 58
NANTICORE	2	2120	48	44.16	37	57.29	28	21 28	1 00-100	54 68	2 57-100	2	3 66
SAWNEE	3	2155	40	53.87	51	42.25	16	21 51	99-100	108 66	5 04-100	1	2 50
COLUMBIA	4	1920	48	40.00	30	64.00	12	18 78	97-100	4 42	85 45-100	2	5 00
L. HAKES	5	685	48	14.27	20	34.25	19	19 19	2 80-100	585 38	85 45-100	2	5 00
COL. WELLS	6	3085	72	42.84	49	62.65	39	33 89	1 09-100	359 47	11 65-100	5	5 80
MONTOUR	7	9355	61	36.79	48	48.06	26	28 97	1 23-100	163 51	6 94-100	1	1 16
WYOMING	8	1885	50	28.66	49	39.27	37	35 04	1 85-100	81 86	4 34-100	1	1 95
NORTHUMBERLAND	9	2425	168	14.33	61	39.75	43	58 97	2 43-100	107 79	4 44-100	1	1 90
BOB TAIL	10	1560	208	11.00	83	27.69	46	71 95	3 14-100	323 76	14 13-100	5	9 22
J. I. BLAIR	11	2290	16	143.75	12	60.00	9	7 80	1 17-100	1087 43	2 37-100	1	29
COL. PAXTON	12	1800	48	37.50	36	50.00	18	21 12		43 69			
MAJOR MCNEILL	13	1800	48	37.50	36	50.00	18	21 12		43 69			
CIVILIZER	14	1800	48	37.50	36	50.00	18	21 12		43 69			
LUTHERY	15	1835	140	13.10	81	22.63	40	54 87	2 99-100	1380 69	22 43-100	1	1 90
ERIE	16	1835	140	13.10	81	22.63	40	54 87	2 99-100	1380 69	22 43-100	2	2 90
MONITOR	17	2244	172	13.04	82	27.36	44	63 20	2 81-100	411 66	22 43-100	4	5 12
THOMAS BEAVER	18	2037	80	25.46	61	33.39	31	35 81	1 75-100	370 13	16 48-100	4	5 12
KINGSTON	19	2270	148	15.33	117	19.40	38	62 31	2 30-100	204 23	8 98-100	5	10 69
JAMES ARCHBALD	20	1845	141	12.81	114	16.18	47	63 26	3 42-100	174 98	9 48-100	5	8 75

RECAPITULATION.

COAL BURNING ENGINES	Miles Run.	Pints of Oil used.	Miles run to one Pail of Oil.	Pounds of Tallow used.	Miles run to one Pound Tallow.	Pounds of Waste used.	Cost for Oil, Waste and Tallow.	Cost per mile for Repairs.	Cost per mile for Repairs.
	35,221	1604	21.95-100	974	36.37-100	533	652 38	1.86-100	5688 50
									16.15-100

CHAS. GRAHAM, M. M.

H. A. FUNDA, Supt.



The Muddle of the Gauges

By LINWOOD W. MOODY

A LOT has been written in recent years about the early railroad widths, the battles-of-the-gauges, and similar problems of the early railroad lines. Someone is always digging the subject up again and writing a treatise more or less like the ones before it. For the most part such work is a repetition of old historical facts with bloody tales of gauge-wars or dry accounts of the inconvenience and expense of transferring freight at every gauge-broken terminal. We are likewise thoroughly familiar with the chronicled reason of how the present standard-gauge was chosen; it was taken from the distance between the old mine-wagon wheels, of that fact we are certain!

But for a reason yet to be explained no one has told us much about the odd and unusual gauges to which some of the early builders spiked their rails. Many folks don't know that half a century ago some of our good-sized roads were built to such unheard of widths as 6 feet, 5 feet, 4 feet, thirty inches, and a lot of intermediate fractions thereof. So, for those as yet unenlightened and we who have merely heard such rumors, let's go back fifty years and take a whirlwind tour of the infant American railroad industry.

1878. Only sixty short years ago! The railroad gauges looked like a stock-market report, with the many odd digits and fractions that betold their width. Among the many that were popular when Grandpa was a boy we find the 3' 6" near the top of the list. This obsolete gauge was considerably favored by the old lions of iron and steam, and because it couldn't have been borrowed from an oxcart or perambulator it will always be a mystery why it was chosen.

Among the many roads of this width, and the first alphabetically, was the old Arkansas Midland. It was built as the Arkansas Central in 1871, and State Aid bonds to the extent of \$15,000 a mile may have lent enthusiasm to the enterprise. Its 35-pound rail wound wearily through 48 miles of the old West between Helena and Clarendon, with no connections except the Mississippi River steamboats. An early foreclosure sale put an end to its identity, and the Arkansas Midland R. R. came into being.

Subsequently its line was extended, a myriad of small roads sprang up around it, of various gauges, until finally in the late 1880's they had all been made standard. But as far as this particular road is concerned we have no further interest in it except to say that it must have been a humdinger, as its only train used to take five hours and thirty minutes to cover 63 miles!

This gauge was exceptionally popular up in Canada, with many miles of it cluttering up the Dominion. Although not a part of the Dominion, the Newfoundland Rwy. is the only one left—at least, the only one that we know of. Perhaps it deserves more than passing mention, altho it was another of those heavily subsidized affairs. The Newfound-

land Government granted an annual subsidy of \$180,000 for 25 years, with a land grant of 5000 acres a mile for every 5 mile section built. But it reserved the right to purchase the road anytime after the first 35 years. This road was originally laid with 35-pound rail.

The Prince Edward Island Ry., another Canadian line, was also built to this gauge in 1871 by the Provincial Government, and upon completion sold to the Dominion Government for \$3,467,000.00 which seems like a pretty good trade for the Provincials. The P. E. I. Ry. had 50-pound steel, which was some heavier than its neighbor across the St. Lawrence Gulf. It has been made standard now but a few years, and some of the narrow-gauge passenger cars are still used up there, perched on standard-gauge trucks.

The part of the Canadian Pacific Ry. that enters Maine at Houlton and Caribou was built in 1861 as the New Brunswick & Canada Ry., standardized in 1879, and went thru several reorganizations before the C. P. R. finally got it.

Then, right in our own dooryard there once wheezed the 3' 6" trains of the Philadelphia & Atlantic City R. R., built in 1877 with 40-pound rail, and immediately falling into the hands of receivers! In spite of its roster of 11 locomotives and 39 passenger cars, this 56 mile pike was some different from the piece of high iron that it is today. It took them three hours to whisk their gay passengers from Philadelphia to the seaside resort, and many a Tired Business Man arrived at the Convention late. Today the Pennsylvania-Reading Seashore Lines run over the old grade in exactly half the time, and that isn't wheeling 'em much, either.

There were many other 3' 6" roads in the 1870's and 80's, all of which are now either standardized or scrapped. The few standardized ones no longer use their original name. The last of these 3' 6" roads to go were the Rio Grande Ry. in Texas, and the Big Sandy & Cumberland R. R. in West Virginia. The Rio Grande Ry. was famous for being opened on the 4th of July, 1872. It had 35-pound steel, and a State land grant of 10,240 acres per mile. For half a century it operated as a narrow gauge, and only four or five years ago was changed to standard and re-named Port Isabel & Rio Grande Valley.

The Big Sandy & Cumberland isn't so well known, being built in more recent years, ran between Devon, West Virginia, and Hurley. It dropped from sight a few years ago and its stations still appear under the Norfolk & Western station list, but whether the narrow-gauge was absorbed by it, or the N. & W. had a paralleling line anyway, we don't know.

Of course there is the 50-odd mile Dismal Swamp R. R. that still operates a 3' 6" logging road around the Dismal Swamp near Norfolk, and according to the books of Virginia is a common-carrier, but it never gets into the Official Guides, Railroad Manuals, or other identifying records. It is laid with very small rail—probably 35-pound—and keeps 3 small locomotives squishing around thru the swamp.

No doubt there are some private roads still using this gauge, but they have no place here. Nobody knows how many logging, mining, and

plantation roads there are in the United States nor what conglomeration of gauges they use, and because they are so obscure we will never know about them all. In Texas, Idaho, California and Washington there are many miles of private logging carriers, some of which are known to be narrow-gauge, but outside of their own woodlot little can be learned of them.

An unusually odd gauge was once owned by the Susquehanna & Eagles Mere R. R., running from Masten, Pa., 20 miles to Eagles Mere. It was a different concern entirely from the better-known 3' 0" Eagles Mere R. R., and was laid to the queer width of 3' 8". Why its builders chose such a gauge is beyond conjecture, and would be interesting to know.

Equally puzzling was the gauge of the Pittsburgh & Castle Shannon R. R. Built in 1871 as a coal road 45 and 50-pound rail to the gauge of 4' 3". Thirty-odd years ago they owned 5 engines and 420 coal cars, in addition to one boxcar and 7 coaches. It was later leased to the Pittsburgh Railways, and finally converted into an electric road not listed among the common-carriers. There were several roads of this width in western Pennsylvania, and why it was chosen instead of 3' 0" or 3' 6" is another mystery of the rails.

The Hecla & Torch Lake R. R., operating a 10 mile road out of Calumet, Michigan, boasted the unique gauge of 4' 1". With such a gauge as that it is reasonably certain they didn't interchange cars with any connecting line! It was owned by the Calumet & Hecla Copper Mining Co. which operated it at a loss for the privilege of having its own ore carried, and owned 9 locomotives and about 400 cars. It was built in 1868 and layed with 40 and 46-pound rail.

Then the still-operating Arcata & Mad River R. R. with the historically-chosen gauge of 3' 9 $\frac{1}{2}$ " (some statistics say 3' 9 $\frac{1}{4}$ ", but one-fourth of an inch doesn't matter either way). As all railroad-fans should know by this time it was selected after much deliberation, experimentation, and puttering around because the original horse-power seemed best able to walk between rails of this gauge . . . or did they walk outside? That doesn't matter, either.

But all these odd gauges weren't confined to small roads. For many years the Delaware & Hudson Company listed their road as being "standard gauge; 6-foot; and 4' 3". The 4' 3" was a gravity road down around Scranton. They declared their rail as being of all weights from 40-pounds to 80-pounds to the yard!

It wasn't unusual for a trunk-line to own some narrow-gauge along with their standard-gauge system. In fact for years one such road advertized this fact, and emphasized it by misspelling gauge as GUAGE. The Union Pacific, Colorado & Southern, Chicago & Northwestern, Milwaukee, Atlantic Coast Line, and the Southern Pacific all owned more or less 3' 0" road, some of which still operates.

Other trunk-lines prided themselves on being strictly "standard-gauge roads", and yet couldn't break away from the idea of being a little different from the others by keeping a gauge that was just a hair wider or narrower than their neighbor's, and yet near enough for interchanging equipment.

Under this heading let's look at two or three at random.

Here is the old Cincinnati, Lafayette & Chicago the *Kankakee Line*, that once spiked its rails to a 4' 8 $\frac{3}{4}$ " gauge! Likewise did the Pittsburgh & Lake Erie lay their 68 miles of track to this same loose width. Probably it was so foreign cars wouldn't wear the rails so much.

The Louisville, Cincinnati & Lexington (the *Short Line Route from Cincinnati to Louisville*) and also the Dundirk, Allegheny Valley & Pittsburgh both used the very common gauge 4' 9 $\frac{1}{4}$ ". This 4' 9 $\frac{1}{4}$ " gauge was so popular fifty years ago that we are moved to think it must have been good.

Then the old Minnesota Valley R. R., later swallowed by the Chicago & Northwestern, was built to the unheard of width of 4' 5 $\frac{1}{2}$ ". If they interchanged cars with the C. & N. W. it was certainly a tight fit.

But these near-standard, and narrower gauges, were by no means the only fruit of our forefathers' genius. Far from it! Many a be-whiskered old fossil built *his* railroad *wider* than the man's next door. For an example we'll look at the Erie. Until the middle 1880's the Erie Railroad and its ancestors reported a gauge of six feet, although in the later years it was mentioned as being in a third-rail duel with standard. It would seem that whoever selected 6' 0" as a gauge for a railroad had an abundance of broad-mindedness, and wanted room to expand in. There were several other 6' 0" roads, too, but perhaps it was a bit wider than the old patriarchs could absorb, as it could never have been called a common gauge.

But the 5' 0" gauge came uncomfortably near crowding out the standard. Half a century ago this width, and the 3' 0", were so seriously vying with the standard that it was a toss-up which of the three would win out. Many thousands of miles of track were laid to this 5' 0" width, among them some of the largest systems of the day. The Central of Georgia, the Georgia R. R. & Banking Co., the Louisville & Nashville, N. C. & St. L., M. & O., and so on.

The two Georgia roads were laid with 56 and 60-pound rail, and by the looks of their ancient timetables that wider gauge could make no quicker schedules than a narrow one. How those old trains did creep along! The Central of Georgia's passenger run between Macon and Savannah took 10 to 11 hours to make the 192 miles; from Macon to Atlanta the *Mail* made the 103 miles in a few minutes under six hours! The other schedules were equally moderate.

The Mobile & Ohio, with its 56-pound rail, was this same width, the 550 mile Chicago, St. Louis & New Orleans (the *Great Jackson Route*); the *Great Southern Mail*, and *Kenesaw Routes*, Vicksburg & Meridan, and the Atlantic & Western of Civil War Fame, all were 5' 0". In fact, it seemed that the South predominated in that width.

Standardization was slow at first, but in the 1880's many of the larger roads changed over; in the 1890's they shifted by the score, and at the beginning of this century only a handful of the broad-gauges survived, and very few of the narrow ones.

In the case of these roads in the South some weren't sure what their gauge was, anyway. The War played havoc with the southern railroads.

in more ways than one. Today a company would be doing business on a standard-gauge scale; early next morning the Union army would swoop into town and by noon the railroad-men found they had a narrow-gauge road on their hands! A few days later the Confederate soldiers would chase the Yankees off the property, and *they* would promptly rebuild the line to a *broad gauge*.

Many stories are told down there of this shifting of gauge, mostly as a military measure to prevent a pursuing army from getting too close, but sometimes as an economic necessity to continued operation. If their own engines and cars had been destroyed or carried off by some marauding army and there was no locomotive on hand for the morning train, the super. would call the boys together, hurry them over to a neighboring town where there was a railroad of totally different gauge, but owning some fine equipment. Then, with a couple of engines and a few cars under their arms, so to speak, the crowd would hurry back home. While one crew busied itself with setting up the borrowed equipment, another gang would hurriedly change the road's gauge to fit the newly-acquired rolling-stock, and the Morning Mail would leave town on time! And then, when the War was over, many a southern railroad official found his yards full of decrepit equipment of several different gauges, due to all this juggling, and probably his line of track was broken in several places by changes in gauge. Because he was hard-put to decide which of these gauges to adopt in the rehabilitation program it is likely his decision came after a survey of the equipment there. Choosing the best of the lot he would rebuild his road to fit it. In view of the fact that the South was a muddle of broad-, narrow-, and all the inbetween-widths it must have taxed the official mind sometimes to know how to choose.

Over the country as a whole there were a few cases where the ambitions, or blunders, of some railroad builder exceeded the 5' 0" width. Canada seemed bound to go the limit, and laid down many 5' 6" roads. The old Central Canada, running out of Ottawa, was this width. Their trains took five hours to run 71 miles, so they couldn't boast that "the wider they were the faster they rolled".

It is also worthy of note that the Carillon & Grenville, up in Quebec, built in 1854 as a 5' 6" road, remained in operation with that gauge until four or five years ago. In its early days it was surrounded with neighbors of the same gauge, but like the "last rose of summer" it saw them all disappear, until itself finally succumbed to the so-called march of Progress. Eighty years existence as a freak-gauge road is an all-time record, no one will deny! There were a few of the 5' 6" in the United States, but not so many, and all were smaller and less important lines.

Another of the purely freak gauges belonged to the Mobile & Spring Hill R. R., running between those points in Alabama, and many years ago being converted to a street-car line. The M. & H. laid its 40-pound rails exactly 5' 2½" apart, or as nearly so as the track-foreman could make it. Its 7 miles of length was built in 1861 and opened early in 1862, right at the height of the Civil War, with 4 engines and 10 passenger cars. It is another instance of an odd gauge, the origin of which is a mystery.

The Iron R. R., for many years running between Ironton and Center, Ohio, 13 miles, was 4' 10" gauge. But that isn't as bad as it looks at first glance, being only 1½" looser than standard. The standard-gauge Cincinnati, Hamilton & Dayton (itself a 4' 9" road) had trackage rights over the Iron Railroad. Oddly enough the road was finally absorbed by the Toledo, Cincinnati & St. Louis, which was a 3' 0" road at the time!

Incidentally, Cincinnati was once about the most confusing railroad-center in the world. There were a number of 3' 0" roads, several 5' 0", and a variety of standard and near-standard all entering the city. Whether they used a union terminal or not, it was a discouraging mess there when a rush was on.

Another odd-gauge road, and of considerable size, was the 4' 0" Jeffersonville, Madison & Indianapolis R. R., with 218 miles of line. As the Madison & Indianapolis it was originally opened in 1847 and operated until the late 1880's before it was broken up by mergers, and made standard-gauge. There were several other 4' 0" roads, too, but none equalling the J. M. & I. in size or long-livety.

Perhaps some folks still remember the 6' 0" New Jersey & New York R. R. running 41 miles between Jersey City and Stony Point. Its trains took two-hours-and-thirty-minutes to make the run!

The Salem Railroad, between Salem and Washingtonville, Ohio, boasted 7 miles of 5' 9" track. Three or four roads were satisfied with a gauge of 30-inches, among which was the Harbor Springs R. R., a short little pike in Michigan. It was owned by the Shay family, inventors of the Shay geared engine, and was powered with three or four of them. Now only a tangle of woods marks the grade where they ran.

The meter-gauge is more of an outgrowth of modern times, there being more of them listed today than ever before. But these are all in either the Latin Americas or the West Indies. The 2-foot gauge was very popular in Maine, but nowhere else for some reason. In addition to the ten 2-footers in Maine there was a short-lived one in Massachusetts, another in North Carolina, and a couple in old Mexico. There were a few that were semi-private carriers, such as the Gilpin County Tramway, serving the Central City District mines in Colorado's mining boom, but they aren't quite eligible for mention here. Although this narrow-gauge was pretty small it was nevertheless totally practical for regions where comparatively light tonnage was moved. Variations of the 2-foot gauge were the 23½" and the 60-centimeter (23⅝") which still exist in foreign countries.

It is also interesting to note that many early railroads had their gauge shifted a number of times, like the Civil War roads of the south. Often a road would be built, only to have the owners decide another width would be better, and away one rail would go—either nearer together or farther apart! The Bangor & Bucksport R. R., up in Maine, was an example. Built in 1874 as a 5' 0" line, with 56-pound steel, it was narrowed to 3' 0" in 1882 because the directors "believed the small steel would be much easier to keep in shape if the road was narrow gauge." The name was changed to Eastern Maine R. R., and a few years later the Maine Central gobbled it up, and made it standard.

Probably a careful survey of the subject would show 3' 0" as having been the most prominent width except for standard, that the country has known. It out-numbered the 5' 0" roads both in mileage and the number of companies using it. Hardly a State didn't have at least a few miles of 3' 0" road at some time or another; countless thousands of miles were layed to this gauge, many of them decrepit little things destined to be standardized soon, or abandoned. But a few were sizable systems worthy of attention.

Take the Toledo, Cincinnati & St. Louis for example. This was a merger of several roads, the Toledo, Delphos & Burlington; the Frankfort & Kokomo; the Dayton & Eastern and so on, and finally grew into a system of about 850 miles of 3' 0" track. But after a few years it was broken up by mergers: the Toledo to East St. Louis line of 460 miles became the Toledo, St. Louis & Kansas City, the *Clover Leaf Route* (now the Nickel Plate), and the lines to Dayton, Cincinnati, Wellston and Ironton went to various carriers. Today much of that really extensive 3' 0" system is abandoned, altho many a bush-grown ridge in Ohio's fields and woods are desolate reminders of where its 30-, 35-, & 40-pound rails were layed—where its 46 shiny locomotives streaked across the countryside—and where investors sunk \$30,000,000 in capital stock!

Of the early 3-footers the Denver & Rio Grande Western still use about 750 miles of that gauge, altho at one time their entire road was 3' 0". The old Denver, South Park & Pacific is about gone, although the C. & S. still use 50-odd miles of the Colorado Central. The Southern Pacific abandoned most of the colorful old Carson & Colorado line in early 1938, and such sizable roads as the Cairo & St. Louis, the Houston East & West Texas, and Cotton belt have long been standard gauge.

Another outstanding point that is worth mentioning is the fact that very few of those non-standard gauge roads survive the years without losing their gauge, their honor, or their identity. But, one that is hale and hearty after more than 60 years as a independent 3' 0" road is the East Broad Top R. R. in Pennsylvania! This little pike, though chartered as far back as 1856, wasn't opened until 1874 and today is still going fairly strong, proving to cynics and skeptics that a narrow-gauge road can make money after all! The East Tennessee & Western North Carolina R. R. has also survived half a century of independence as a 3-footer, despite the awful name it has dragged along behind it.

In closing let's look at two or three of those roads that are more or less monstrosities. The 3' 6" Mauch Chunk Switchback R. R. built in 1826 to carry coal down off the mountain. In the early days the loaded coal-cars were dropped down by gravity, with a couple of mules riding on top of the coal. When the car was unloaded the mules hauled the empty car 9 miles back up to the mines! Finally a circuitious route was built whereby thru attached cables the loaded cars coming down hauled the empty cars going up, and the long-eared gentry were put out to pasture. In 1870 the coal business was dropped, and the road settled down to a period of 60 years of hauling tourists and sight-seers, and then, in 1937, 111 years after its beginning, it was dismantled.

A similar outfit was the old Pennsylvania Coal Co.'s R. R., running from Hawley, Pa., 47 miles to Point Griffith, with a 15 mile branch from Hawley to Lackawaxen. This was built as a gravity road in 1851, with 23 stationary engines along the way to pull the cars when gravity failed. It boasted a 4' 3" gauge, 25 to 37-pound rail, and 3200 coal cars.

Also in Pennsylvania were the Mt. Olive Incline Ry., and the Pittsburgh Inclined Plane, both operated by the Pittsburgh & Birmingham Traction Co. The P. & B. used a 5' 2½" gauge, while the Incline Plane was *nine* feet wide . . . the widest gauge yet!

The Manitou & Pikes Peak Cog Road, and the Mt. Washington R. R., in Colorado and New Hampshire respectively, and likewise the old Green Mountain R. R. in Maine, are still another type of road of which gauge doesn't count so much. The Pikes Peak affair is now standard, and while the Mt. Washington was once 5' 3" it is now supposed to be standard. The Green Mountain R. R. was 4' 7½", running up the side of what is now called Cadillac Mountain, near Bar Harbor, and was abandoned 40 years ago.

So today, when railroad mileage is declining rather than expanding, and standardization of everything is the vogue, it's interesting to know that only a few short years ago one could have found about any width track that he wanted, and without hunting very hard either. Blasé standardization was unheard of, and each road was pretty much sufficient unto itself, rather than dependent upon any physical connection it might have had.

It was a great time . . . that era of railroad-building, the thrills of experimenting, and the dizzy muddle of the gauges, but today our heritage is the equally dizzy muddling problem of keeping a vast, interlocking system of standard-gauge lines from disintegrating, and dropping back to the status of Grandpa's day.

Lehigh and Hudson River Railway

By CAPT. W. W. ROBINSON

THIS line, which is today of such importance as an indispensable connecting link between several of the larger railway systems of the northeast, had its beginning as a little ten mile railroad planned as a convenient outlet for the products of the fertile valley of the Warwick River in Orange County, New York. This was a prosperous agricultural and dairying region with an intelligent and progressive population. For a great many years everything had been hauled overland in wagons to Newburgh, the shipments there loaded on boats on the Hudson River and conveyed to New York City.

The New York and Erie Railroad was built through Orange County in the forties with its eastern terminus at Piermont on the Hudson, in Rockland County, which meant that freight shipped to the city had to be loaded on the river boats at that point. To the farmers there was not much of an improvement in this method of shipment and they continued to send their products to Newburgh. In the fifties the Erie acquired the Ramapo and Paterson Railroad running from Suffern to Jersey City and changed its eastern terminus to that city. It was apparent then that shipping over the Erie was a more suitable way to get the farm commodities directly and quickly to New York City. The Erie passed through Greycourt and Chester, but ten miles from the village of Warwick.

The prominent wealthy farmers of the valley and the merchants of Warwick became interested in having a railroad from their locality to the main line of the Erie, knowing that such a road not only would give them better transportation facilities but add further prosperity to their community. April 20, 1859 a meeting was held to discuss this question, the result being the organization of the Warwick Valley Railroad Company which received its charter dated March 8, 1860. Grinnell Burt was named President.

A right of way was surveyed from Warwick to the Erie at Greycourt (then known as Newburgh Junction) $10\frac{1}{4}$ miles, where also the Erie's Newburgh Branch (opened January 9, 1850) connected the main line. A contract for construction was awarded for \$140,000 and work commenced in June 1860. April 1, 1862 the road was officially opened for business under an agreement with the Erie by which that company furnished the cars and motive power, which arrangement was continued until 1880. The trains of the Warwick Valley, which were mixed passenger and freight, ran through to Newburgh over the Erie's branch.

A few years after the close of the Civil War extensive iron mines were opened near the state line. The ore was hauled to the railroad at Warwick and shipped to a furnace at Arden, N. Y. Dairying also developed to a large extent south of Warwick in the valleys of Wawayanda and Pochuck creeks in Sussex County, and large lime kilns were placed in operation at McAfee, N. J.

In order to more satisfactorily handle this new business the line of the Warwick Valley Railroad was extended to McAfee, eleven miles, in 1880. Construction from Warwick to the state line was under the company's original charter, and that from the state line to McAfee was under the charter of the Wawayanda Railroad Company, organized January 1, 1880, to legalize the extension into the state of New Jersey. May 27, 1880 the two companies were merged under the name of the Warwick Valley Railroad Company.

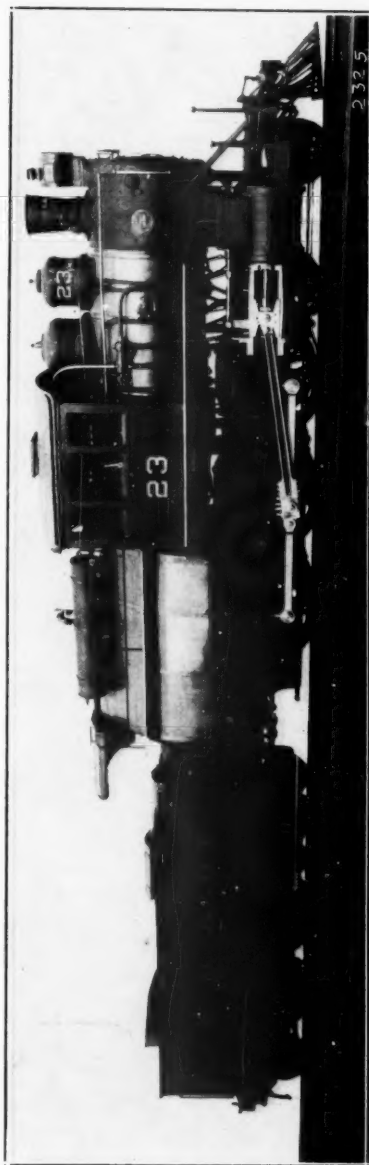
About this time plans were adopted to extend the line southerly to reach the Delaware River. Action on this was hastened by the prospects of competition, a charter having been issued by New Jersey to the Pequest and Walkill Railroad Company to construct a line from Belvidere easterly to the New York state line, fifty miles. The Warwick Valley people secured a charter for the Lehigh and Hudson River Railroad Company in January 1881 to build a road from Belvidere to McAfee. The two interests got together and May 16, 1881 the Pequest and Walkill was merged into the Lehigh and Hudson River Railroad. Construction was immediately begun and the new line completed to McAfee, forty-one miles, in August 1882.

April 1, 1882 there was formed The Lehigh and Hudson River Railway Company, a consolidation of the Warwick Valley Railroad Company and the Lehigh and Hudson River Railroad Company, making a line from Greycourt to Belvidere of 63½ miles.

Freight was now carried eastward to Greycourt, thence over the Erie's branch to Newburgh where it was floated either across the Hudson River to the railroads at Fishkill Landing and Dutchess Junction for transportation to New England, or down the river to New York harbor. During the period 1884-5 coal traffic was developed through association with the Lehigh Coal and Navigation Company, large miners and shippers of anthracite coal, and the president of that company, Joseph S. Harris, became Vice President of the Lehigh and Hudson River.

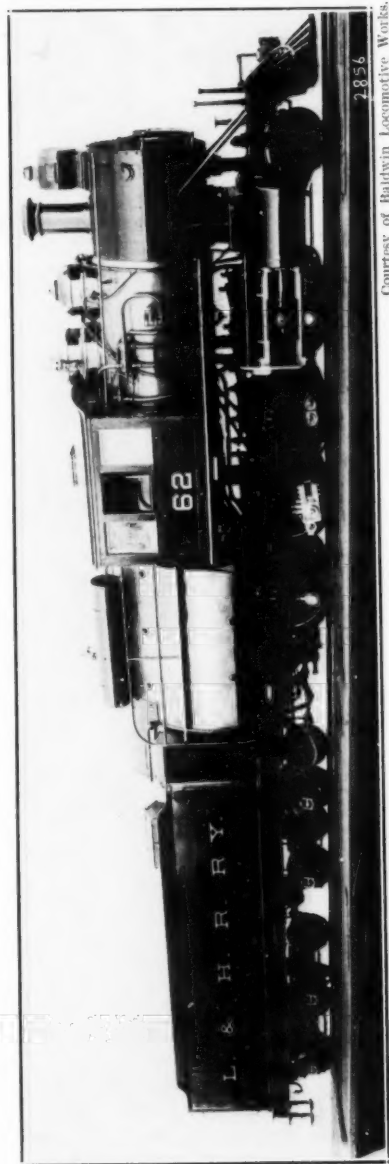
With the advent of the construction of the Poughkeepsie Bridge and the extension of the Central New England and Western Railroad to Maybrook, the Lehigh and Hudson River people organized the Orange County Railroad Company, chartered November 28, 1888, to construct a line from Greycourt to Maybrook, 10.7 miles, passing through Burnside and connecting there with the New York, Ontario and Western Railway. This extension was opened in January 1890 and immediately leased to The Lehigh and Hudson River.

Next there was organized the South Easton and Phillipsburg Railroad Company, July 25, 1889, to build a bridge across the Delaware River between the cities of Easton, Pa., and Phillipsburg, N. J., seven-tenths of a mile, making connection with the Central Railroad of New Jersey and the Lehigh Valley, which was opened in January 1890 and then leased to The Lehigh and Hudson River, the company having entered into an agreement with the Pennsylvania Railroad (owner of the Belvidere Delaware Railroad) for trackage rights between Belvidere and Phillipsburg, 13.3 miles, for a period of 99 years.



Courtesy of Baldwin Locomotive Works.

L. & H. R. #23—Baldwin—1907.



L. & H. R. #62—Baldwin—1908.

Courtesy of Baldwin Locomotive Works.

In 1905 arrangements were made for trackage rights over the Sussex branch of the Delaware, Lackawanna and Western from Andover to Port Morris, nine miles, to connect with the main line of the Lackawanna. This was brought about by an agreement between the New Haven and Lackawanna railroads to divert New England business from the Harlem River route, involving as it did the use of floats upon the East River, and reroute the traffic via The Lehigh and Hudson River and the Poughkeepsie Bridge. To expedite this traffic it was necessary to run The Lehigh and Hudson River trains from Andover to Port Morris where there were yards sufficiently large to handle the business satisfactorily.

May 22, 1907 the Orange County Railroad was absorbed into The Lehigh and Hudson River and likewise the South Easton and Phillipsburg Railroad April 2, 1912. In the latter year the Mine Hill Railroad Company, incorporated December 2, 1891, was merged. The Mine Hill line from Franklin Junction $2\frac{3}{4}$ miles, was built by The Lehigh and Hudson River to reach the large mines and crushing plant of the New Jersey Zinc Company. At this writing the mining company is shipping from forty to fifty cars a day which are run in a solid train each evening.

Thus a through route of $96\frac{1}{2}$ miles with yards and sidings of $59\frac{1}{4}$ miles was established from the heart of the coal regions in Pennsylvania to New England territory, thereby avoiding the former congestion in New York harbor, and the road ceased to be merely a local institution and became a through carrier.

It is interesting to note the gradual change in the nature of the shipments over the road. In the days of the old Warwick Valley the greater portion of the shipments consisted of the products of animals. After the opening of the through route approximately two-thirds of the tonnage was coal. Practically all of the traffic for which the road was originally built has been taken from it since the coming of the improved highway and the motor truck.

Although efforts were made from time to time to develop passenger business by running through trains between Easton and Maybrook, this business did not materialize to any extent as the railroad does not run through a thickly populated area. In October 1912 the Pennsylvania and New Haven railroads decided that owing to the risk involved in the transfer by float on the East River of the then famous Federal Express, to abandon that route, and it was operated over the Central New England to Maybrook and The Lehigh and Hudson River from there to Belvidere, until the completion of the Hell Gate bridge in January 1916. This arrangement necessitated the laying of the main track with 100-lb. rail and the installing of a complete system of automatic signals for greater safety, over the entire line of The Lehigh and Hudson River. Passenger service today consists only of a local making two round trips daily between Warwick and Greycourt.

The purchase of the Central New England, the Poughkeepsie Bridge Route, by the New Haven, resulted in a largely increased amount of business carried over The Lehigh and Hudson River for New England territory. This necessitated large expenditures for improvements. A

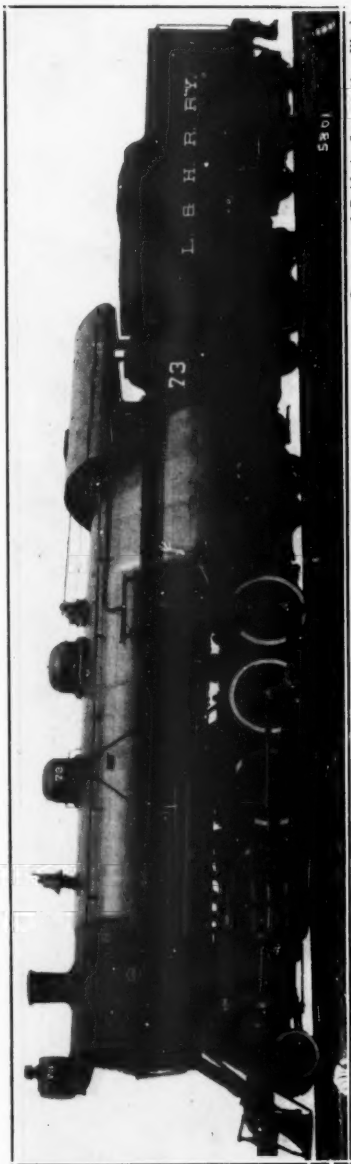
new bridge was built across the Delaware River at Easton, the road was relaid with heavier steel rails, sidings lengthened, yards enlarged, new cars and locomotives purchased and a new modern roundhouse and shops built at Warwick.

During the fiscal year ending in June 1905 several large railroads purchased stock in The Lehigh and Hudson River. Prior to that time it was owned by three interests, namely, local people, the Lehigh Coal and Navigation Company and the Central Railroad of New Jersey. The new interests included the Erie, the Lackawanna, the Lehigh Valley and the Pennsylvania railroads. Their securing part ownership of the line was brought about by the insistence of the then president of the New York, New Haven and Hartford, Mr. Mellen, that the road must be allotted to his company as he wished to have physical connection with all the railroads entering New York on the west side of the Hudson. This was before the Hell Gate bridge was constructed. He threatened to parallel The Lehigh and Hudson River if he could not get it. This was stopped, however, by the above companies buying an interest, so then he was told that when he had connection with The Lehigh and Hudson River at Maybrook he also had connection with all the others.

The seventy-eight years of the life of The Lehigh and Hudson River Railway covers the tenure of but three presidents:

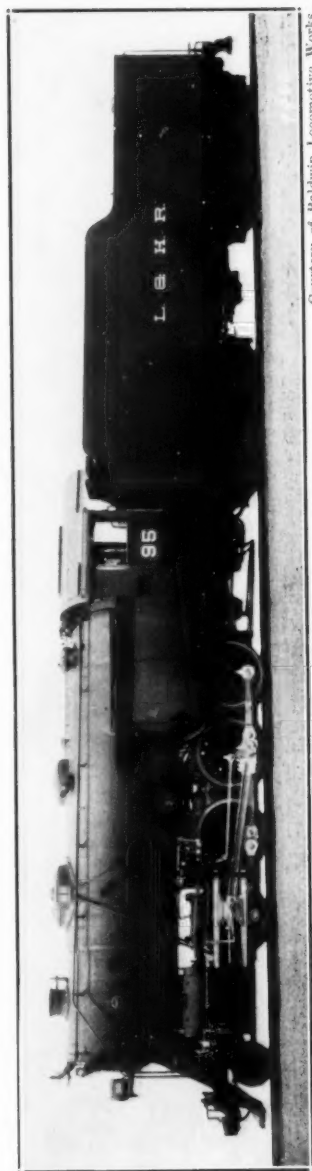
First, Grinnell Burt, the builder, whose vision, resourcefulness and energetic efforts were directed toward its completion as a through route. He was born in Bellvale in the township of Warwick, November 7, 1822, where his grandparents had settled in 1760 and acquired large land-holdings. His father was a member of the State Legislature at Albany for many years. Grinnell followed mercantile pursuits for a short while in Cleveland and then returned to Warwick to study law. In 1852 he became interested in the building of railroads and upon the organization of the Warwick Valley Railroad he identified himself with that company. In addition to his office with The Lehigh and Hudson River, he was active in developing the Middletown, Unionville and Water Gap Railroad of which he was the president. In 1878 he built forty miles of the Pittsburgh and Western Railroad as superintendent of construction. In 1883 he was President of the Cincinnati, Van Wert and Michigan Railroad which was extended one hundred miles under his administration, and for several years he was President of the Kanawha and Michigan Railroad. He was one of a committee which successfully reorganized the Toledo and Ohio Central Railroad and was largely instrumental in the reorganization of the New Jersey Midland Railroad. Surely, he must have been a man of great ability. He died August 3, 1901, after completing forty-one years as directing head of The Lehigh and Hudson River.

Second, Lewis A. Riley of Philadelphia, Vice President as successor to Mr. Harris, an engineer, corporation executive and financier, a director of the Lehigh Coal and Navigation Company, during whose term the railroad was modernized to a high state of efficiency and its financial structure placed on a firm foundation. Mr. Riley died April 23, 1925.



Courtesy of Baldwin Locomotive Works.

L. & H. R. #73—Baldwin—1916.



Courtesy of Baldwin Locomotive Works.

L. & H. R. #95—Baldwin—1927.

Third, Morris Rutherford of Warwick, (son of John Rutherford, member of the first Board of Directors) who became President April 29, 1925 after having previously been Paymaster, General Freight and Passenger Agent, Vice President and General Manager. Since his elevation to the presidency the company has been carried safely through the difficult period of readjustment in our national economic life.

In years past many prominent men have been numbered among the company's Boards of Directors, notably Garrett A. Hobart, former Vice President of the United States, Thomas C. Platt, former United States Senator, George F. Baker, financier of New York City, George F. Baer, President of the Central Railroad of New Jersey and coal executive, Robert W. DeForest, lawyer and donor of the American Wing of the Metropolitan Museum in New York City, and Thomas P. Fowler, President of the New York, Ontario and Western Railway, whose home was in Warwick.

The company has made a remarkable financial record. Dividends have been paid on the common stock continuously since 1912 to this writing and no bondholder has ever lost one cent through the purchase of its bonds. There is now no bonded indebtedness.

ROSTER OF THE LEHIGH AND HUDSON RIVER RAILWAY LOCOMOTIVES

Loco. Numbers	Type	Builder	Date	Const. No.	Cylinders	Weight	Disposition
1 "Grinnell Burt"	4-4-0	Cooke	1880	1110	18x24	60	64000 (Approx.) Sold 2nd hand, Feb. 24, 1909 (Note "A")
2 "Warwick"	4-4-0	Cooke	1880	1111	18x24	60	64000 (Approx.) Feb. 24, 1909 (Note "A")
3 Formerly #17	4-4-0	Cooke	1881	1164	14x24	60	Sold 2nd hand before 1902 (Note "B")
4 "Belvidere"	4-6-0	Cooke	1892	2089	18x24	56	Sold 2nd hand July 1917 (Note "D")
5 Form. 1st #14	4-4-0	Cooke	1882	1355	18x24	60	64000 (Approx.) Scrap: before 1902
6 Form. 1st #15	4-4-0	Cooke	1892	1971	17½x24	66	100000 (Approx.) Scrap: before 1902
7 "Pequest"	4-4-0	Cooke	1882	1356	18x24	60	64000 (Approx.) Scrap: before 1902
8 Form. 1st #15	4-4-0	Cooke	1892	2332	17½x24	66	100000 (Approx.) Scraped Oct. 22, 1923
9 Form. 1st #15	2-6-0	Cooke	1882	1406	18x24	56½	100000 (Approx.) Scrapped June 1906
10 "Wawayanda"	2-6-0	Cooke	1882	1363	19x24	56½	100000 (Approx.) Sold May 19, 1906 (Note E)
11	2-6-0	Cooke	1882	1364	19x24	56½	100000 (Approx.) Sold 2nd hand (Note F)
12	2-6-0	Cooke	1882	1364	19x24	56½	Prior to 1902
13	4-4-0	Baldwin	1906	28423	20x26	68	136000 Sold for scrap Jan. 1928
14 "John Rutherford"	2-6-0	Baldwin	1886	7079	22x28	56	100000 (Approx.) Sold 2nd hand, 1902 (Note G)
15 Became 1st 25	2-8-0	Baldwin	1903	23132	22x28	56	180000 See No. 55 (L.C.N. No. 29) (Note H)
16 Later No. 55	2-8-0	Cooke	1889	1987	20x24	50	124000 Sold for scrap, Nov. 1921
17	2-8-0	Cooke	1889	1988	20x24	50	124000 Sold for scrap, March 1929
18	2-8-0	Cooke	1891	2077	20x24	50	124000 Sold for scrap, April 1924
19	2-8-0	Cooke	1891	2078	20x24	50	124000 (blew up) See 2nd No. 14 (rebuilt)
20	4-4-0	Cooke	1892	1971	17½x24	66	100000 See 2nd No. 4
21	2-8-0	Cooke	1891	2078	20x24	50	124000 Sold for scrap, Oct. 1925
22	4-4-0	Cooke	1892	2332	17½x24	66	100000 See 2nd No. 5
23	0-6-0	Baldwin	1894	13897	19x24	50	93000 Sold 2nd hand, Feb. 1917 (Note I)
24	4-6-0	Cooke	1892	2333	21x26	56	135000 Sold 2nd hand, Jan. 1902 (Note "C")
25	2-8-0	Baldwin	1904	24128	22x28	56	180000 See No. 56 (L.C.N. No. 31) (Note H)
26	4-6-0	Cooke	1892	2089	18x24	56	104000 See 2nd No. 3
27	4-6-0	Cooke	1892	2242	21x26	56	135000 Sold 2nd hand, Aug. 1916 (Note E)
28	4-6-0	Cooke	1893	2248	21x26	56	135000 Sold 2nd hand, Jan. 1902 (Note "C")
29	2-8-0	Baldwin	1904	24129	22x28	56	180000 See No. 57 (L.C.N. No. 32) (Note H)
30	4-6-0	Cooke	1893	2249	21x26	56	135000 Sold 2nd hand, Aug. 1916
31	4-6-0	Cooke	1893	2249	21x26	56	135000 Sold 3rd No. 19
32	4-6-0	Baldwin	1906	28450	21x26	64	153450 Sold for scrap June 1936
33	4-6-0	Baldwin	1894	13882	21x26	64	146516 Sold for scrap Nov. 1921
34	4-6-0	Baldwin	1894	13883	21x26	64	146516 Sold for scrap Dec. 1922

1st 20	Became 3rd 19	1893	2249	21x26	56	153000	See 3rd No. 19
2nd 20		1906	28450	21x26	64	153450	Sold for scrap June 1936
21		1894	13882	21x26	64	146516	Sold for scrap Nov. 1921
22							
1st 23	Became 2nd 15	1894	13883	21x26	64	146516	Sold for scrap Dec. 1923
2nd 23		1894	13897	19x24	56	93000	See 2nd No. 15
1st 24	Formerly #13	1907	30268	21x26	64	153450	Sold 2nd hand Nov. 1922 (Note J)
2nd 24	Later 2nd 14	1891	2078	20x24	50	124000	See 2nd No. 14
1st 25	Form. 2nd #9	1907	30269	21x26	64	153450	Sold for scrap May 1929
2nd 25	Later #55	1903	21332	22x28	56	180000	See No. 55 (L. C. N. No. 29)
1st 26	Form. 2nd 16	1907	30416	21x26	64	153450	Sold for scrap Nov. 1934
2nd 26	Later No. 56	1904	24128	22x28	56	180000	See No. 56 (L. C. N. No. 31)
1st 27	Form. 2nd 19	1907	30417	21x26	64	153450	Sold for scrap Dec. 1929
2nd 27	Later No. 57	1904	24129	22x28	56	180000	See No. 57 (L. C. N. No. 32)
1st 28	Became No. 53	1907	30418	21x26	64	153450	Scrapped Dec. 1925
2nd 28		1906	28787	22x28	56	180000	See No. 53
1st 29	Became No. 54	1907	30424	21x26	64	153450	Sold for scrap Sept. 1930
2nd 29		1906	28788	22x28	56	180000	See No. 54
1st 30	Became No. 50	1907	31502	21x26	64	153450	Scrapped Oct. 1926
2nd 30		1904	23729	22x28	56	180000	See No. 50 (L. C. N. No. 30) Note H)
1st 31	Became No. 51	1907	31503	21x26	64	153450	Sold for scrap April 1930
2nd 31		1906	28789	22x28	56	180000	See No. 51
1st 32	Became No. 52	1907	31504	21x26	64	153450	Scrapped: May 1923
2nd 32		1906	28790	22x28	56	180000	See No. 52
1st 33		1907	31522	21x26	64	153450	Sold 2nd hand Oct. 1927 (Note I)
2nd 33		1907	31550	21x26	64	153450	Sold 2nd hand Oct. 1924 (Note J)
34		1907	31551	21x26	64	153450	Scrapped: Nov. 1928
Numbers 35 to 49, inclusive, were never used.							
50	Form. 1st 30	1904	23729	22x28	56	180000	Sold for scrap Oct. 1930 (L. C. N. #30)
51	Form. 1st 31	1906	28789	22x28	56	180000	Sold for scrap June, 1933
52	Form. 1st 32	1906	28790	22x28	56	180000	In service Jan. 15, 1938
53	Form. 1st 28	1906	28787	22x28	56	180000	Scrapped May, 1928
54	Form. 1st 29	1906	28788	22x28	56	180000	Scrapped March, 1925 blew up 3-1-25.
55	Form. 2nd #9	1903	23132	22x28	56	180000	Scrapped May, 1928
Then 1st 25							(L. C. N. No. 29)
56	Form. 2nd 16	1904	24128	22x28	56	180000	Scrapped Dec. 1925
Then 1st 26							(L. C. N. No. 31)
57	Form. 2nd 19	1904	24129	22x28	56	180000	Scrapped Oct. 1927
Then 1st 27							(L. C. N. No. 32)
58		1908	33044	22x28	56	189650	Sold for scrap Oct. 1933
59		1908	33045	22x28	56	189650	Sold for scrap Feb. 1934
60		1908	33046	22x28	56	189650	On active roster
61		1908	33041	22x28	56	189650	Sold for scrap June 1933
62		1908	33042	22x28	56	189650	Sold for scrap June 1933

63	2-8-0	Baldwin	1908	33052	22x28	56	189650	On active roster
64	2-8-0	Baldwin	1908	33064	22x28	56	189650	Sold for scrap Oct. 1933
65	2-8-0	Baldwin	1908	33065	22x28	56	189650	Sold for scrap June 1933
66	2-8-0	Baldwin	1908	33071	22x28	56	189650	Sold for scrap Sept. 1933
67	2-8-0	Baldwin	1908	33072	22x28	56	189650	Sold for scrap June 1933
68	2-8-0	Baldwin	1908	33073	22x28	56	189650	Sold for scrap Dec. 1934
69	2-8-0	Baldwin	1908	33074	22x28	56	189650	Sold for scrap June 1933
70	2-8-2	Baldwin	1916	43062	25x30	56	285400	On active roster
71	2-8-2	Baldwin	1916	43063	25x30	56	285400	On active roster
72	2-8-2	Baldwin	1916	43079	25x30	56	285400	On active roster
73	2-8-2	Baldwin	1916	43080	25x30	56	285400	On active roster
Numbers 74 to 79 inclusive were never used.								
80	2-8-2	Baldwin	1918	49616	26x30	63	292000	On active roster U. S. R. A.
81	2-8-2	Baldwin	1918	49617	26x30	63	292000	On active roster U. S. R. A.
82	2-8-2	Baldwin	1918	49618	26x30	63	292000	On active roster U. S. R. A.
83	2-8-2	Baldwin	1918	49678	26x30	63	292000	On active roster U. S. R. A.
Numbers 84 to 89 inclusive, were never used.								
90	2-8-0	Baldwin	1925	58454	27x32	61	309700	On active roster
91	2-8-0	Baldwin	1925	58455	27x32	61	309700	On active roster
92	2-8-0	Baldwin	1925	58456	27x32	61	309700	On active roster
93	2-8-0	Baldwin	1925	58457	27x32	61	309700	On active roster
94	2-8-0	Baldwin	1927	59979	27x32	61	309700	On active roster
95	2-8-0	Baldwin	1927	59980	27x32	61	309700	On active roster

Note A—Originally Warwick Valley R. R. locomotives No. 1 and No. 2.

Note B—1st No. 3 had smaller drivers and was lighter than No. 1 and No. 2; originally L. & H. R. Railroad No. 8.

Note C—1st No. 3 sold to C. Torbert, Dealer in Second-hand Railroad Equipment, Chicago, Ill., who in turn sold it, July 6, 1917, to the

Note D—2nd No. 3 sold to C. Torbert, Dealer in Second-hand Railroad Equipment, Chicago, Ill., who in turn sold it, July 6, 1917, to the

Note E—No. 7 and 18 sold to the Birmingham Rail & Locomotive Company.

Note F—1st No. 8 sold for mine use at Colfax, Ohio.

Note G—1st No. 9 when sold, went to Dulota, Penna.

Note H—2nd No. 9, 2nd No. 16, 2nd No. 19 and 1st No. 30 purchased second-hand from the Lehigh Coal & Navigation Company.

Note I—2nd No. 15 sold to A. C. Torbert, Chicago, Ill.

Note J—2nd No. 23 when sold, became Middletown & Unionville R. R. No. 3.

Note K—2nd No. 33 when sold became Middletown & Unionville R. R. No. 4.

The following were Mother Hubbard (two-cab) locomotives:

2nd No. 18, 2nd No. 9, Nos. 10 to 13 inclusive, 2nd No. 14, 2nd No. 15, 2nd No. 16, 2nd No. 19, 2nd No. 20, and Nos. 21 to 69

inclusive, including all uses of numbers.

This roster was prepared by Mr. E. Huyler, Chief Clerk to the President and General Manager, and Mr. O. Berthoff, Chief Clerk to the

Superintendent, and is furnished through the courtesy of President Morris Rutherford of the L. & H. R. Ry. Co.

The Sterling Iron and Railway Co.

By NORVIN H. GREEN

IN that long mountainous belt of pre-cambrian rock stretching in a north-easterly direction across the States of New York and New Jersey, and which, further south, is known as the Blue Ridge, is some of the prettiest and historic scenery in the East.

Where these mountains cross the Hudson they are known as the Highlands, and during the Revolutionary War several iron chains were stretched across the Hudson River at Fort Montgomery and West Point to prevent the ascent of the British Fleet to aid Burgoyne's army which surrendered at Saratoga.

The iron for these chains was mined and smelted in the hills both in New York and New Jersey, the industry having been started about seventeen fifty. The casual traveler will still find these hills potted with old mine holes, and in the valleys where there was water power to run the stamping mills and blowers are ruins of old furnaces. There are also miles of abandoned railway whose brush filled grades and rusty streaks speak eloquently of an industry now almost extinct.

It is one of these properties, the Sterling Iron and Railway Co., the owner of two railway lines which will engage the attention of this article. Opened about 1750 at the time of the American Revolution it was owned and operated by William Alexander, and Lord Sterling, a General in Washington's army after whom it was named.

Until the opening of the New York and Erie Railroad up the Valley of the Ramapo River in 1841, all ore and pigiron had to be transported either on mule back or by team to the nearest landings on the Hudson River, or to the head of navigation on the Passaic River at Acquackanock to be shipped to New York. With the opening of this railway which passed within seven and one half miles of the mines and furnaces the problem of transportation was greatly simplified.

During the Civil War the demand for iron was enormous and the profits consequently very large, so on May 18th, 1864, the Sterling Mountain Railway was chartered to run from Sterlington on the Erie Railroad to the furnace and mines on Sterling Lake, Orange County, New York, a distance of seven and six tenths miles. However it was not until November 1st, 1866 that the line was opened, and it was full of heavy grades and sharp curves.

Leaving the Ramapo Valley at Sterlington the line ascends the valley of a small creek to Eagle Valley, a distance of about two and a half miles, where it crosses the water shed into the Valley of the Ringwood River. It ascends this river valley about a mile to the site of a blast furnace which was abandoned during the depression of 1873 or shortly thereafter, and continues up this valley to the mines at Lakeville on Sterling Lake.

At the time the road was opened the New York and Erie Railroad was six foot gauge so the writer presumes that the original gauge of the Sterling Mountain Railway was the same. The two earliest records

available to the writer, Poor's Manual for 1884 and 1885 give the gauge as five feet eight and one half inches, while the same Manual for 1886 gives the gauge as standard.

It seems fair to assume the first two mentioned above to be an error, and that the line had been converted to standard during the early 1870s. A third rail had been laid on the New York, Lake Erie and Western, the successor to the Erie, being completed to Buffalo, December 24th, 1878.

The panic of 1873 and the gradual decline of smelting iron by charcoal, followed by the enormous rise of the Pittsburgh iron industry located where cheap coal was available, caused a gradual closing of all furnaces in this vicinity, so it is extremely doubtful if the furnace on the line of the Sterling Mountain Railway was in blast long after this. The large piles of tree covered slag testified as to what a busy furnace it was during the years it operated.

The mines, however, continued to operate closing for good in the bad times that followed the World War. The boom in the iron business during the World War, like the Civil War, caused a large expansion in mining operations and in 1920 the property was leased to the Midvale Steel and Ordnance Co. However, after spending large sums of money, opening new mines and grading railways, the entire operation was abandoned in 1921 and neither mines or railway have since been operated.

The earliest figures available to the writer, that is for the year ending September 30th, 1884, show that train miles were 12000 and that 6210 passengers were carried while the total freight tonnage was 91864, the greater part being iron ore.

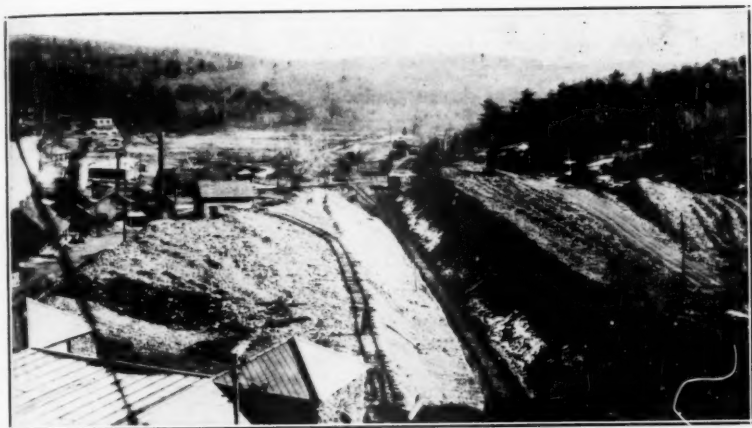
The earnings for that year were as follows:

Passengers	\$ 1274
Freight	38354
Other rectx.	696
Total	\$40324

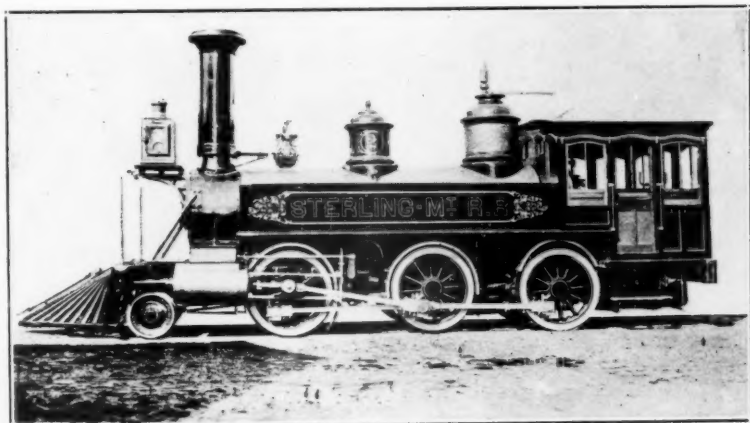
The operating expenses being \$30200, the net operating income was \$10124. At that time the road was well supplied with equipment owning two locomotives, one hundred and forty four freight cars, and a one half interest in a passenger coach. Two and a half miles of line were laid with fifty six pound steel rails, the balance presumably with light wrought iron rail.

The entire capital stock was \$80000 and \$475674 first mortgage 7% income bonds were owned by the Sterling Iron and Railway Co. and the cost of the road and equipment was \$500864.

As a boy in the early nineteen hundred's the writer well remembers the small 4-4-0 puffing up the grades with five or six ore cars and an old convertible passenger—baggage car—caboose, which must have been the original car of 1866. Incidentally this car was still in use to the date of the abandonment of the road in 1921 and for over ten years thereafter, stood on a siding at Lakeville and has only recently disappeared. The only remaining piece of equipment is a box car which looks as if it



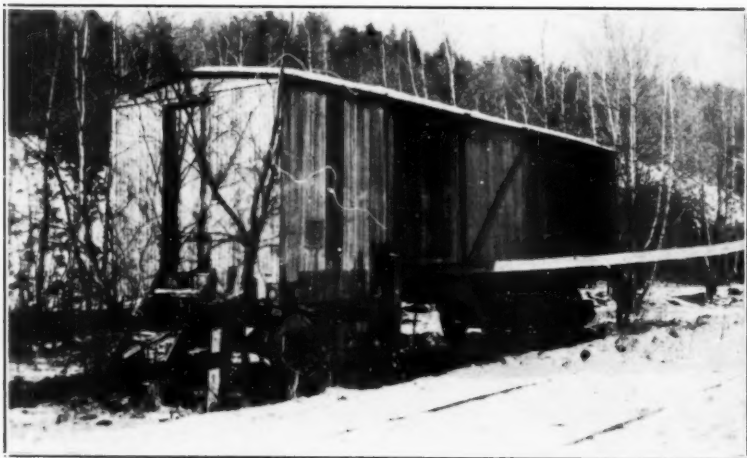
Sterling Mt. R. R. Western Terminus at Lakeville. looking eastward down the main line.



Sterling Mt. R. R. #2—Grant—prior to 1866.



Sterling Mt. R. R. #2—Baldwin—1894. Originally an 0-6-0 but homemade pony truck added.



Old Freight Car on Sterling Mt. R. R.

had been resheathed during the war, rotting away on a siding at the mines.

The earnings for the last full year of operation, 1920, were as follows: revenue train miles (mixed) 10084 and tons of revenue freight moved 35,776. The equipment owned being one locomotive and two cars.

The operating revenues were as follows:

Passenger	\$ 5503
Freight	15690
Other	3290
Total	\$24483

The operating expenses were as follows:

Maintenance of Way	\$24071
Maintenance of Equip.	5609
Traffic Exp.	134
Transportation	15197
General	2163
Total	\$47174

Loss from operations was \$22,691 and tax accruals were \$3,013 making an operating loss of \$24,352. To this loss should be added the following:

Hire equipment	\$ 5238
Replacements	4260
Interest	15240
Total	\$24738

This made a total deficit for the year of \$49,090. And the profit and loss deficit of December 31st, 1920 was \$351,895.

The Sterling Iron and Railway Co. also owned the Southfield Branch Railroad, one mile long from Southfield Station on what is now the Erie Railroad to the Parrot furnace at Southfield. This furnace as near as can be ascertained operated until the early nineties and it was here that Parrot guns of Civil War fame were forged.

Poor's Manual for 1884 states that the line was six feet and four feet eight and one half inches in gauge therefore the line must have been equipped with a third rail like the New York, Lake Erie and Western with which it connected.

Nearly all traces of this once busy road have disappeared but the ruins of the furnace and slag piles may still be seen near Southfield. During the year 1884 it owned two locomotives and transported 26,404 tons of freight with gross earnings of \$3108 and expenses of \$3,684, it showed a loss of \$576. The capital stock, \$1000 and floating debt of \$16,784 were all owned by the Sterling Iron and Railway Co.

There is no likelihood of the Southfield Branch Railroad ever running again and very little likelihood of the Sterling Mountain Railway re-opening. Should the Sterling Mines ever operate again, and should a large tonnage be produced, it might be more desirable to extend the Ringwood branch of the Greenwood Lake division of the Erie Railroad

to Lakeville over easier grades permitting the operation of longer trains with less operating expense. It is really a shame the old passenger car-caboose could not have been saved as it was a museum relic of an era that has disappeared before the day of streamlining.

The property is at present owned by the heirs of the late E. H. Harriman having been purchased by the Railway King about 1908.

EDITOR'S NOTE:—Since completing his contribution, Mr. Green has uncovered some additional data which will be of interest. Relative to the activities of these mines and furnaces during the Civil War, it was the Southfield, Greenwood and other furnaces east and west of the Ramapo Valley that furnished the pigs that were shipped by rail to Cornwall and thence via water to the West Point Foundry at Cold Spring, N. Y. Here they were made into the justly famous Parrott guns and shells which were vastly superior to any other piece of ordnance of their time.

In the matter of the gauge of the Sterling Mountain R. R., a search through subsequent "Official Guides" indicates that as late as July, 1899, the road was a six foot gauge road, long after the Erie was made standard.

Relative to the locomotive #2, the figure on the side of the lantern appears to be a rearing white horse. The crest of William Alexander, Lord Sterling, was a horse's head and all the early pig iron had a horse's head stamped on each end and Sterling Co. in the middle. The locomotive was built by the Grant Locomotive Works, successors to the New Jersey Locomotive & Machine Co., in the late sixties and was undoubtedly a six foot gauge locomotive.

Locomotives of the New Haven R. R.

By CHAS. E. FISHER

Continuing the roster of locomotives in Bulletin No. 46, we come now to the

BOSTON & PROVIDENCE R. R.

Chartered in 1831 to build a railroad from Boston to the Massachusetts State Line in Pawtucket or Seekonk and authorized in Rhode Island to extend the road from the above point to Providence, the road was opened as far as Readville on June 4, 1834 and to Canton on Sept. 12 of that same year. The road was opened from Boston to Providence on June 11, 1835 but a detour was made around the Canton viaduct which was not completed. On July 28th of that year, the viaduct was completed and through service commenced.

On Feb. 5, 1835 the branch to Dedham was opened and in 1842 the branch to Stoughton was opened. On May 3, 1848, the Union Station in Providence was opened and the trains of this road left the India Point Terminal for the new station.

In addition to forming a link in the rail and water route between Boston and New York, via Providence, the road received the business of the New Bedford & Taunton and Taunton Branch roads destined for Boston. In later years, the road was a link in the rail line between Boston and New York and the Old Colony, appreciating the strategic value of this sixty odd mile road, leased it on April 7, 1888.

One more important line came to the Old Colony—the Providence, Warren & Bristol R. R. This company was formed on Nov. 16, 1854 as the result of a consolidation of two companies of the same name, chartered in Massachusetts and Rhode Island. This fourteen mile road was opened July 12, 1855. It was leased by the Old Colony R. R. on July 1, 1891 and in reality formed an extension for the line already owned by the Old Colony from Fall River to Warren, thus making a through line from Fall River to Providence.

No account of the Boston & Providence R. R. would be complete without mention of Mr. George S. Griggs, the Master Mechanic. Through the kindness of our member—Mr. Harry S. Moy, we learn that the Griggs family dates back to 1635 when George Griggs brought his wife and five children over here from Buckinghamshire, England.

George Smith Griggs was born in 1805. He served his trade as a mill wright for Paul Moody of Waltham, Mass., a master mill wright. Moody died in 1831 and George W. Whistler became interested in the concern. Young Griggs went to Lowell and at the Locks & Canals Co. learned to build locomotives. He must have been adept at learning, for in 1834, at the age of twenty-nine, Mr. W. Raymond Lee, Sup't. of the Boston & Providence R. R. hired him to take charge of their locomotives.

At first he was content with organizing his department, later he sought to improve the locomotive and the majority of the early engines were built under his direction in the Roxbury Shops. Mr. Griggs was

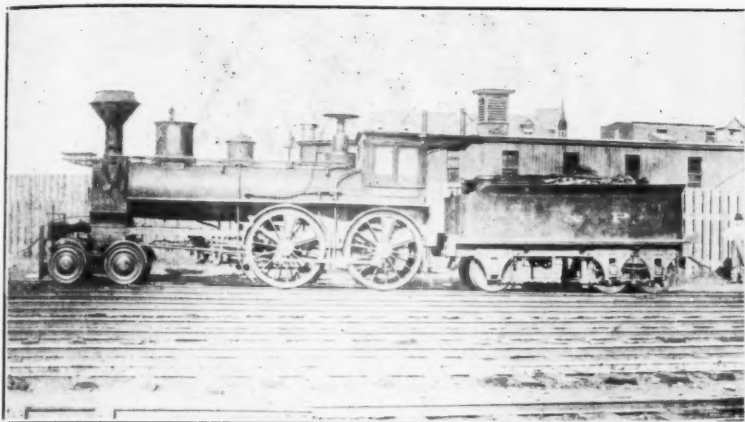
the first to apply a diamond stack to any locomotive, as early as 1852 he used the link motion for valve gear, he also applied an elastic lining between the wheel centre and the tire to lessen the shock. Many other devices or methods in his shops were the product of his fertile brain but perhaps his best known device, other than the diamond stack was his use of the brick arch. The increasing cost of wood as fuel caused him to turn his attention to burning coal. Many devices had been tried, the majority of them worthless. A shelf of cast iron was placed across the firebox, under the tubes and filled with bricks. It was a success on the first trip, but not being very durable an arch of firebricks 24x4x8" was substituted and this was followed by our brick arch of today. The early passenger cars were simple affairs mounted on four wheels with the doors on the sides. Mr. Griggs placed two of these small car bodies on a frame and mounted them on two four wheel trucks and this paved the way for the coach of one body on its frame.

Perhaps the highest compliment that can be paid him was that his work on the locomotive was closely followed by the Taunton Locomotive Works and Hinkley & Drury. Mr. Griggs continued to build inside connected locomotives long after the other roads had discarded them and they were a common sight on this road as late as the seventies.

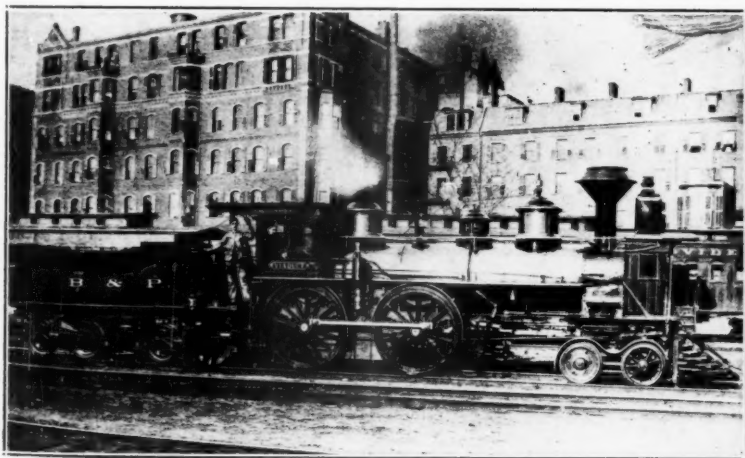
Mr. George S. Griggs died August 9, 1870 and we can do no better than quote his obituary notice in the "Railroad Gazette"—"We know of no single man who has done more to perfect and advance the details of the locomotive, the car and the track, since the railway was first instituted in this country." He was succeeded by Mr. George Richards who remained at the head of its motive power until the Old Colony leased the road. Thus in its fifty-four years of corporate independence, this road had only two Master Mechanics and one of them was a genius.

In presenting the roster of Boston & Providence R. R. motive power, it is needless to say that many of their early locomotives never came into the Old Colony family. The roster is complete, so far as we are able to learn at this late day.

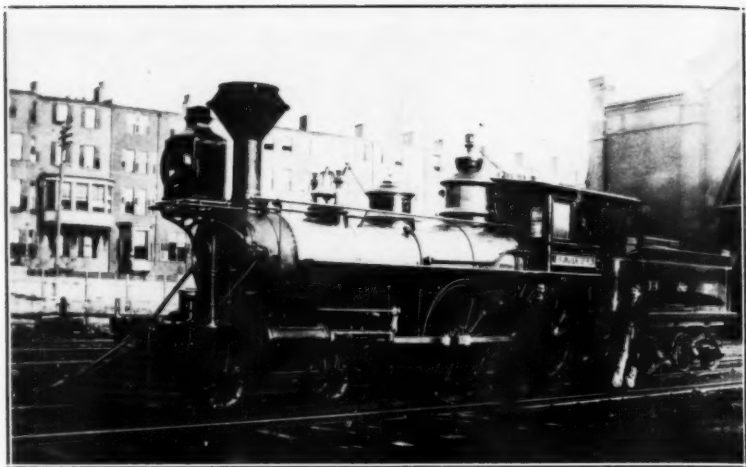
Whistler	Stephenson	—	1833	2-2-0	Renamed
Massachusetts					Lost in bog at Mansfield
Boston	Edw. Bury		1835	4-2-0 12x18" 60"	Sold—B. H. & E. R. R.
New York	Geo. Forester		1835		
Lowell	Locks & Canal		1835		
Providence	Locks & Canal		1835		
Lincoln	Long & Norris		1835		Sold—B. H. & E. R. R.
Canton	Long & Norris		1835		
Dedham	Long & Norris		1835		
Black Hawk	Long & Norris		1835		Lost with load of dirt in the quicksands of Sprague Pond, Readville
Philadelphia	Wm. Norris		1835		
Baldwin #1	M. W. Baldwin	#	30	1836	
Baldwin #2	M. W. Baldwin	#	34	1836	
Baldwin #3	M. W. Baldwin	#	39	1836	
Young #1	New Castle		1836	4-2-0	
Young #2	New Castle		1836	4-2-0	
Tiot	Locks & Canal		1837		



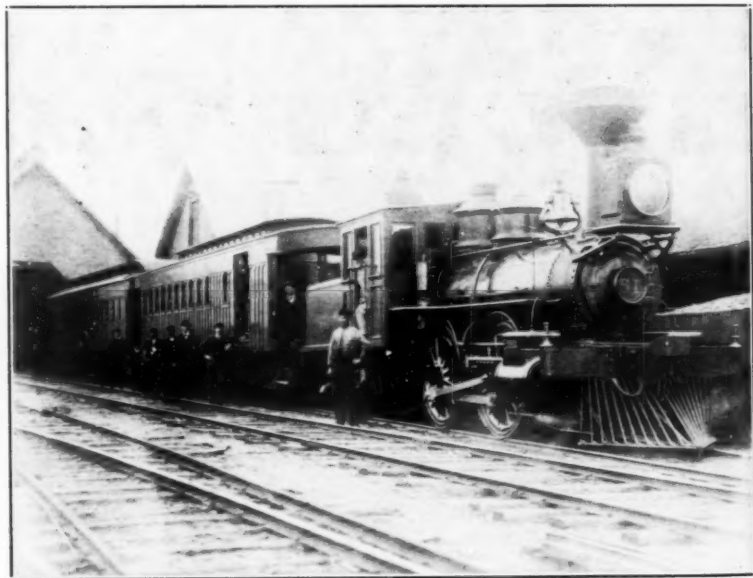
B. & P. "Washington"—Griggs—1854.



B. & P. "Viaduct"—B. & P., 1873. Last insider built by the road.



"B. & P." B. R. Nichols, Rhode Island, 1872.



B. & P. "H. F. Barrows"—Rhode Island—1882.

	King Philip Attleborough	Locks & Canal	1839 Renamed	
1	Norfolk	G. S. Griggs	1845 4-4-0 14½x18" 55"	
1	T. P. I. Goddard	Rhode Island # 810	1880 4-4-0 17x24" 60"	
154		Re 754-1890—Rebuilt 1903—Sc	8-18-1919	
	Suffolk	G. S. Griggs	1846 4-4-0 14½x18" 60"	
			Sold—Nor. & Worc. R. R.	
	Bristol	G. S. Griggs	1846 4-4-0 14½x18" 60"	
2	Massachusetts	G. S. Griggs	1846 4-4-0 14½x18" 60"	
2	W. R. Robeson	Rhode Island # 962	1881 4-4-0 18x22" 66"	
155		Re 755-1704—Sc 1-16-1913		
	Blackstone	G. S. Griggs	1847 4-4-0 14¾x20" 60"	
			Sold—Springfield L. W.	
	Taghonic	G. S. Griggs	1848 4-4-0 14¾x18" 66"	
	Narragansett	G. S. Griggs	1848 4-4-0 16x20" 54"	
3	Iron Horse	G. S. Griggs	1848 4-4-0 14¾x18" 60"	Renamed
	Hyde Park—Sold—	Prov. Warren & Bristol R. R.		
3	Thos. B. Wales	Rhode Island # 732	1878 4-4-0 17x24" 66"	
156		Re 756-1910—Sc 7-1-1909		
	4 Rhode Island	G. S. Griggs	1848 4-4-0 14¾x20" 66"	
4	H. A. Whitney	Mason # 714	1884 4-4-0 18x24" 66"	
157		Re 757-1702—Sc 2-1917		
	5 Providence	Taunton L W # 30	1849 4-4-0 15x18" 60"	
5	Providence	Rhode Island # 304	1871 4-4-0 16x24" 60"	
158		Re 758—Scrap prior to 1903		
758		Rhode Island #28534	1903 4-4-0 18x24" 69"	
		Re 1549—Sc 5-31-1928		
	Canton	G. S. Griggs	1849 4-4-0 14¾x20" 60"	
6	Neponset	G. S. Griggs	1849 4-4-0 14¾x20" 66"	Sold—
		Boston, Hartford & Erie R. R.		
6	Geo. R. Minot	Rhode Island # 1355	1883 4-4-0 18x24" 66"	
159		Re 759-1750 Sc June 1910		
7	Highlander	G. S. Griggs	1850 0-6-0 14¾x18" 48"	
7	Geo. R. Russell	Rhode Island # 684	1876 4-4-0 16x24" 66"	
160		Re 760—Sc 1904		
	Roxbury	G. S. Griggs	1851 2-2-2 9x16" 54"	Sold—
		Rome, Watertown & Ogdensburg R. R.		
	Dedham	G. S. Griggs	1851 2-2-2 9x16" 54"	Sold—
		Fitchburg & Worcester R. R.—"Uncle Tom"		
8	W. R. Lee	G. S. Griggs	1853 4-4-0 15¾x18" 66"	
8	W. Raymond Lee	Rhode Island # 639	1874 4-4-0 16x24" 66"	
161		Re 761		
761		Roxbury Shop	1899 4-4-0 18x24" 69"	
		Re 1596—Sc Dec. 1935		
	9 Washington	G. S. Griggs	1854 4-4-0 15x20" 66"	
9	Susan Nipper	Rhode Island # 1976	1888 0-4-0 15x24" 48"	
162		Re 762-2900—Sc 10-24-1913		
10	New York	G. S. Griggs	1854 4-4-0 15x20" 60"	
10	Wm. Merrill	Rhode Island # 1740	1887 0-4-4 17x20" 54"	
163		Re 763-2110—Sc 11-30-1914		
11	Mansfield	Taunton L W # 156	1854 4-4-0 16x20" 60"	
		Purchased from Southbridge & Blackstone R. R.—"Hamilton Willis".		
11	Henry Dalton	Rhode Island # 694	1877 4-4-0 16x24" 66"	
164		Re 764-2013—Sc 10-18-1904		
	G. S. Griggs	Amoskeag	1855 4-4-0 15x22" 54"	
			Rebuilt & renamed	
	King Philip			
12	Attleboro	G. S. Griggs	1855 4-4-0 15x20" 54"	
12	B. B. Torrey	Rhode Island # 866	1880 4-4-0 17x24" 60"	
165		Re 765		
765	Rebuilt	S. Boston Shop	1899 4-4-0 17x24" 69"	
		Re 1815—Sc 11-20-1919		

13	Foxboro	Lowell M. S.	# 133	1859	4-4-0	14x20"	66"
13	Jos. W. Balch	Rhode Island	# 1008	1881	4-4-0	17x24"	66"
166		Re 766-1876—Sc	10-4-1910				
14	Sharon	Lowell M. S.	# 140	1859	4-4-0	14x20"	66"
14	James Daily	Rhode Island	# 1079	1881	4-4-0	17x24"	60"
167		Re 767-1919—Sc	4-22-1905				
15	Roxbury	G. S. Griggs		1858	4-4-0	15½x20"	60"
168		Sc—1889					
168		O. C. R. R.		1890	4-4-0	16x24"	66"
		Re 768-2002—Sc	8-15-1911				
16	Dedham	G. S. Griggs		1860	4-4-0	16x20"	66"
1638	Robert Keayne	Rhode Island	# 1977	1888	4-4-0	18x24"	66"
169		Re 769-1696—Sc	5-28-1920				
17	Daniel Nalson	G. S. Griggs		1863	4-4-0	16x20"	54"
170						Loaned to Purdue University	
170		O. C. R. R.		1892	2-6-0	19x24"	63"
770		Re 601—Sc	6-30-1925				
18	Boston	G. S. Griggs		1863	4-4-0	16x20"	54"
18	Arnold Green	Rhode Island	# 1527	1885	0-4-4	17x20"	54"
171		Re 771-2113—Sc	10-1908				
19	Commonwealth	G. S. Griggs		1864	4-4-0	15¾x20"	60"
172		Sc 1892					
172		O. C. R. R.		1892	2-6-0	19x24"	57"
		Re 772-614—Sc	6-30-1925				
20	G. W. Whistler	Taunton L. W.	# 368	1865	4-4-0	16x20"	60"
20	Royal C. Taft	Rhode Island	# 1009	1881	4-4-0	17x24"	60"
173		Re 773					
773	Rebuilt	Roxbury Shop		1894	4-4-0	17x24"	69"
		Re 1870—Sc	1-20-1919				
21	A. A. Folsom	Rhode Island	# 12	1867	4-4-0	16x24"	66"
174		Re 774					
774	Rebuilt	Roxbury Shop		1903	4-4-0	16x24"	69"
		Re 2011—Sc	4-30-1915				
22	Readville	Taunton L. W.	# 373	1865	4-4-0	16x20"	60"
22	Readville	Taunton L. W.	# 908	1884	4-4-0	16x24"	60"
175		Re 775-2021—Sc	12-12-1910				
23	W. H. Morrell	Hinkley L. W.		1868	4-4-0	16x24"	60"
176		Re 776—Sc	1902				
776		Roxbury Shop		1903	4-4-0	18x24"	69"
		Re 1576—Sc	9-30-1929				
24	John Barstow	G. S. Griggs		1865	4-4-0	16x22"	60"
24	C. H. Wheeler	Rhode Island	# 1577	1885	0-4-4	15x20"	54"
177		Re 777-2114—Sc	5-5-1911				
25	Gen'l. Grant	G. S. Griggs		1866	4-4-0	16x20"	66"
25	D. B. Standish	Taunton L. W.	# 896	1883	4-4-0	16x24"	60"
178		Re 778-2022—Sc	12-22-1907				
26	Judge Warren	G. S. Griggs		1868	4-4-0	17x22"	66"
26	Squantum	Taunton L. W.	# 916	1885	0-4-4	16x20"	54"
		Purchased from Prov. Warren & Bristol R. R.					
179		Re 779-2116—Sc	2-1908				
27	David Tyler	G. S. Griggs		1869	4-4-0	17x22"	66"
180		Sc 1890					
180		O. C. R. R.		1890	2-6-0	19x24"	57"
		Re 780-616—Sc	1-31-1922				
28	Gov. Clifford	G. S. Griggs		1869	4-4-0	17x22"	66"
28	R. H. Stevenson	Taunton L. W.	# 925	1886	4-4-0	17x24"	60"
181		Re 781-1893—Sc	12-31-1915				
Dummy Little Rhody		Rhode Island	# 129	1869	0-4-0	11x15"	43"
29	Paul Revere	B & P R. R.		1871	4-4-0	17x22"	66"
182		Re 782—Sc	1892				
182		O. C. R. R.		1892	2-6-0	19x24"	57"
		Re 782-615—Sc	7-31-1925				

30	G. S. Griggs	Rhode Island	#	96	1869	4-4-0	16x24"	60"
183		Re 783—Sc 1902						
783		Roxbury Shops			1903	4-4-0	18x24"	69"
		Re 1577—Sold—1930						
31	John Winthrop	Rhode Island	#	184	1870	4-4-0	16x24"	60"
184		Re 784—Sc 1898						
784		Roxbury Shop			1899	4-4-0	18x24"	69"
		Re 1597—Sc 9-30-1927						
32	Pegasus	Taunton L. W.	#	440	1868	4-4-0	17x22"	66"
	Originally named—	"Gov. Clifford."						
185		Re 785—Sc 1890						
785		O. C. R. R.			1892	2-6-0	19x24"	63"
		Re 602—Sc 10-16-1926						
33	Roger Williams	Rhode Island	#	186	1870	4-4-0	16x24"	60"
186		Re 786—Sc 1898						
786		S. Boston Shop			1899	4-4-0	18x24"	69"
		Re 1598—Sc 10-1929						
34	Pancks	Rhode Island	#	251	1871	0-4-0	14x24"	48"
187		Re 787-2913—Sc 8-1-1906						
35	Wm. G. McNeill	Rhode Island	#	348	1872	4-4-0	16½x24"	66"
188	Rebuilt	O. C. R. R.			1892	4-4-0	17x24"	66"
		Re 788-1871—Sc 6-15-1917						
36	Sam Weller	Rhode Island	#	379	1872	0-4-0	14x24"	48"
189		Re 789—Sc 1903						
37	B. R. Nichols	Rhode Island	#	384	1872	4-4-0	16x24"	60"
190		Re 790—Sc 1899						
790		S. Boston Shop			1900	4-4-0	18x24"	69"
		Re 1588—Sc 2-29-1928						
38	John Lightner	Rhode Island	#	414	1872	4-4-0	16x24"	60"
191		Re 791—Sc 1901						
791		Roxbury Shop			1902	4-4-0	18x24"	69"
		Re 1580—Sc 12-29-1926						
39	W. W. Woolsey	Rhode Island	#	476	1872	4-4-0	16x24"	60"
192		Re 792—Sc 1900						
792		Roxbury Shop			1901	4-4-0	18x24"	69"
		Re 1581—Sc 9-30-1927						
40	Stoughton	Rhode Island	#	475	1872	0-4-0	14x22"	54"
40	John H. Clifford	Rhode Island	#	1821	1887	4-4-0	16x24"	66"
193		Re 793-2004—Sc 12-1-1906						
41	Mark Tapley	Rhode Island	#	474	1873	0-4-0	12x22"	48"
194		Re 794—Sc 1903						
794		Rhode Island	#	29380	1904	0-6-0	19x26"	51"
		Re 2335—Active						
42	Micawber	Rhode Island	#	523	1873	0-4-0	14x24"	48"
195		Re 795-2910—Sc 9-15-1906						
43	Geo. Richards	Rhode Island	#	526	1873	4-4-0	16x24"	60"
196		Re 796—Sc 1904						
44	Moses B. Ives	Rhode Island	#	617	1873	4-4-0	16½x24"	66"
197		Re 797						
797	Rebuilt	Roxbury Shop			1898	4-4-0	17x24"	69"
		Re 1820—Sc 11-30-1919						
45	Viaduct	B & P R. R.			1873	4-4-0	17x22"	66"
198		Sc 1892						
198		O. C. R. R.			1893	2-6-0	19x24"	57"
		Re 798-613—Sc 1-31-1922						
46	J. H. Wolcott	Rhode Island	#	793	1879	4-4-0	17x24"	66"
199	Rebuilt	O. C. R. R.			1892	4-4-0	17x24"	66"
		Re 799-1872—Sc 1-20-1919						
47	Thomas Motley	Rhode Island	#	910	1880	4-4-0	17x24"	66"
200		Re 800-1825—Sc 11-30-1919						

48	D. L. Davis	Rhode Island	# 1112	1881	4-4-0	17x24"	60"
201		Re 801-1936—Sc	10-22-1918				
49	H. A. Chase	Rhode Island	# 1113	1881	4-4-0	17x24"	66"
202		Re 802-2005—Sc	10-24-1913				
50	Isaiah Hoyt	Rhode Island	# 1184	1882	4-4-0	17x24"	60"
203		Re 803-1917—Sc	9-29-1919				
51	H. F. Barrows	Rhode Island	# 1193	1882	0-4-4	15x20"	54"
204		Re 804—Sc	1904				
52	Abner Alden	Rhode Island	# 1241	1882	4-4-0	17x24"	66"
205	Rebuilt	O. C. R. R.	1891				
		Re 805-1832—Sc	12-3-1908				
53	Moses Boyd	Rhode Island	# 1288	1883	4-4-0	17x24"	60"
206		Re 806-1918—Sc	2-8-1914				
54	Jack Bunsby	Rhode Island	# 1338	1883	0-4-0	14x24"	48"
207		Re 807-2908—Sc	11-4-1906				
55	Jos. Grinnell	Rhode Island	# 1450	1884	0-4-4	16x20"	54"
208		Re 808-2117—Sc	1-26-1907				
56	Wm. Appleton	Rhode Island	# 1451	1884	4-4-0	17x24"	66"
209		Re 809-1886—Sc	12-31-1915				
57	Fred Paine	Taunton L. W.	# 907	1884	4-4-0	17x24"	66"
210		Re 810-1875—Sc	1-1906				
58	Roger Wolcott	Taunton L. W.	# 926	1886	4-4-0	17x24"	60"
211		Re 811-1894—Sc	2-1917				
59	W. G. Russell	Rhode Island	# 1684	1886	0-4-4	17x20"	54"
212		Re 812-2112—Sc	1-17-1913				
60	Winslow Warren	Rhode Island	# 1685	1886	4-4-0	17x24"	60"
213		Re 813-1895—Sc	4-30-1915				
61	C. H. Warren	Rhode Island	# 1778	1887	0-4-4	17x24"	54"
214		Re 814-2111—Sc	4-30-1915				
62	Stoughton	Hinkley L. W.	# 1707	1887	4-4-0	18x24"	60"
215		Re 815-1754—Sc	5-18-1917				
63	Henry W. Dale	Rhode Island	# 1887	1887	4-4-0	17x24"	66"
216		Re 816-1873—Sc	12-31-1915				
64	J. O. Yatman	Rhode Island	# 1888	1887	4-4-0	17x24"	66"
217		Re 817-1874—Sc	10-24-1913				
	Utility	Rhode Island	# 1317	1882	0-4-0	15x24"	48"
218		Re 818—Sc	1904				
	Useful	Rhode Island	# 302	1871	0-4-0	14x24"	48"
219		Re 819—Sc	1904				
	Iron Clad	Rhode Island	# 177	1870	0-4-0	14x24"	48"
220		Re 820—Sc	1904				
820		Rhode Island	# 29381	1904	0-6-0	19x26"	51"
		Re 2336—Sc	1-31-1935				

The following few numbers were filled with locomotives received from the Providence, Warren & Bristol R. R.

	Hyde Park	G. S. Griggs	1848	4-4-0	14 $\frac{3}{4}$ x18"	60"
		Purchased from Boston & Prov. R. R.				
	1 Mt. Hope	Taunton L. W.	1861	4-4-0	Sold—Moshassuck Valley R. R.—"Loraine"	
	1 L. M. E. Stone	Taunton L. W.	# 891	1884	4-4-0	17x24" 60"
221		Re 821-1916—Sc	6-7-1910			
	2 Wampanoag	Taunton L. W.	# 301	1862	4-4-0	? ?
	2 Wm. Goddard	Rhode Island	# 960	1881	4-4-0	16x24" 60"
222		Re 822—Sc	1900			
822		Roxbury Shop	1901	4-4-0	18x24"	69"
		Re 1582—Sc—2-29-1928				
	3 Gen. Burnside	Taunton L. W.	# 369	1866	4-4-0	16x22" 60"
223		Re 823—Sc	1892			
823		O. C. R. R.	1893	2-6-0	19x24"	57"
		Re 610—Sc	1-31-1922			

4 Amos D. Smith and in turn sold	Rhode Island to the N. T. & Q.	# 257	1871	0-4-4	Sold to Rhode Is. L. W.
4 Squantum	Taunton L. W.	# 916	1885	0-4-4	R. R. of Canada—"Tamworth" #5 —Sold to B & P R. R.
4 Annawamscutt	Taunton L. W.	# 930	1887	4-4-6	17x20" 60"
224 Rebuilt	O. C. R. R.		1891	0-4-0	17x20" 57"
	Re 824-2803—Sc	?			
5 S. W. Church	Rhode Island	# 683	1876	4-4-0	16x24" 60"
225	Re 825—Sc 1904				
825	Rhode Island	#29382	1904	0-6-0	19x26" 51"
	Re 2337—Active				
6 F. M. Weld	Rhode Island	# 911	1880	4-4-0	16x24" 66"
226	Re 826-2007—Sc	5-26-1906			
7 Pokanoket	Mason	# 726	1885	2-4-6	16x24" 54"
227	Re 827-2102—Sc	5-1906			

With the acquisition of the Boston & Providence and the increased weight of trains on the Shore Line as well as upon other divisions, newer and larger locomotives were needed and the following is the last group in the Old Colony series:

228	O. C. R. R.		1890	4-4-0	18x24" 66"
828	Re 1686—Sc	6-1-1923			
229	O. C. R. R.		1890	4-4-0	18x24" 66"
829	Re 1687—Sc	6-1-1923			
230	O. C. R. R.		1890	4-4-0	17x24" 66"
830	Re 1833—Sc	10-22-1918			
231	Mason	# 754	1890	2-6-6	16x24" "54
831	Re 2100—Sold—Holbrook	& Daily—9-20-1905			
232	O. C. R. R.		1891	4-4-0	20x28x24" 66"
832 Rebuilt	S. Boston Shop		1900	4-4-0	18½x24" 69"
	Re 1650—Sc	1-1-1923			
233	O. C. R. R.		1891	4-4-0	18x24" 66"
833	Re 1681—Sc	6-1-1923			
234	O. C. R. R.		1891	4-4-0	18x24" 66"
834	Re 1682—Sc	1-6-1921			
235	O. C. R. R.		1891	4-4-0	18x24" 66"
835	Re 1683—Sc	7-1-1923			
236	O. C. R. R.		1891	4-4-0	18x24" 66"
836	Re 1684—Sc	6-1-1923			
237	O. C. R. R.		1892	4-4-0	18x24" 66"
837	Re 1679—Re	6-1923			
238	O. C. R. R.		1892	4-4-0	18x24" 66"
838	Re 1680—Sc	1-1-1923			
239	Manchester	# 1531	1892	4-4-0	18x24" 66"
839	Re 1667—Sc	1-6-1921			
240	Manchester	# 1532	1892	4-4-0	18x24" 66"
840	Re 1668—Sc	1-6-1921			
241	Manchester	# 1533	1892	4-4-0	18x24" 66"
841	Re 1669—Sold—May,	1923			
242	Manchester	#1534	1892	4-4-0	18x24" 66"
842	Re 1670—Sc	6-1923			
243	Manchester	# 1535	1892	4-4-0	18x24" 66"
843	Re 1671—Sc	1-20-1919			
244	Manchester	# 1536	1892	4-4-0	18x24" 66"
844	Re 1672—Sc	12-31-1922			
245	Manchester	# 1537	1892	4-4-0	18x24" 66"
845	Re 1673—Sc	10-1923			
246	Manchester	# 1538	1892	4-4-0	18x24" 66"

846	Re 1674—Sc	12-31-1922		
247	Manchester	# 1539	1892	4-4-0 18x24" 66"
847	Re 1675—Sc	12-31-1922		
248	Manchester	# 1540	1892	4-4-0 18x24" 66"
848	Re 1676—Sc	12-31-1922		
249	Manchester	# 1571	1893	4-4-0 18x24" 66"
849	Re 1662—Sc	12-31-1922		
250	Manchester	# 1572	1893	4-4-0 18x24" 66"
850	Re 1663—Sc	1-31-1922		
251	Manchester	# 1573	1893	4-4-0 18x24" 66"
851	Re 1664—Sc	1-6-1921		
252	Manchester	# 1574	1893	4-4-0 18x24" 66"
852	Re 1665—Sc	12-31-1922		
253	Manchester	# 1575	1893	4-4-0 18x24" 66"
853	Re 1666—Sc	1-6-1921		
254	O. C. R. R.		1892	4-4-0 18x24" 66"
854	Re 1677—Sc	May 1923		
255	O. C. R. R.		1892	4-4-0 18x24" 66"
855	Re 1678—Sc	1-6-1921		
256	O. C. R. R.		1893	4-4-0 18x24" 66"
856	Re 1660—Sc	Jan. 1925		
257	O. C. R. R.		1893	4-4-0 18x24" 66"
857	Re 1661—Sc	12-31-1922		
258	O. C. R. R.		1893	4-4-0 18x24" 66"
858	Re 1659—Sc	6-1-1924		
259	Vacant			
859	Rhode Island	#29383	1904	0-6-0 19x26" 51"
	Re 2338—Sc	12-1935		
260	Vacant			
860	Rhode Island	#29384	1904	0-6-0 19x26" 51"
	Re 2339—Active			
261	O. C. R. R.		1893	4-4-0 19x26" 78"
861	rebuilt			4-4-0 18x26" 78"
	Re 1632—Sc	6-1-1923		

This ended the Old Colony locomotives.

The following engines in the old series was added by the New Haven R. R.

862	Rhode Island	#28535	1903	4-4-0 20x24" 73"
	Re 1250—Sc	12-1935		
863	Rhode Island	#28536	1903	4-4-0 20x24" 73"
	Re 1251—Active			
864	Rhode Island	#28537	1903	4-4-0 20x24" 73"
	Re 1252—Sc	1-31-1935		
865	Rhode Island	#28538	1903-4-4-0	20x24" 73"
	Re 1253—Sc	12-1935		
866	Rhode Island	#28539	1903	4-4-0 20x24" 73"
	Re 1254—Sc	12-1935		
867	Rhode Island	#28540	1903	4-4-0 20x24" 73"
	Re 1255—Sc	12-1935		
868	Rhode Island	#28541	1903	4-4-0 20x24" 73"
	Re 1256—Sc	12-1935		
869	Rhode Island	#28542	1903	4-4-0 20x24" 73"
	Re 1257—Sc	12-1935		
870	Rhode Island	#28543	1903	4-4-0 20x24" 73"
	Re 1258—Active			
871	Rhode Island	#28544	1903	4-4-0 20x24" 73"
	Re 1259—Sc	12-1935		
872	Rhode Island	#28545	1903	4-4-0 20x24" 73"
	Re 1260—Active			

873	Rhode Island	#28546	1903	4-4-0	20x24"	73"
	Re 1261—Sc 1-31-1935					
874	Rhode Island	#28547	1903	4-4-0	20x24"	73"
	Re 1262—Active					
875	Rhode Island	#28548	1903	4-4-0	20x24"	73"
	Re 1263—Active					
876	Rhode Island	#28549	1903	4-4-0	20x24"	73"
	Re 1264—Sc 12-1935					
877	Rhode Island	#29385	1904	0-6-0	19x26"	51"
	Re 2340—Sc 12-1935					
878	Rhode Island	#29386	1904	0-6-0	19x26"	51"
	Re 2341—Active					
879	Rhode Island	#29387	1904	0-6-0	19x26"	51"
	Re 2342—Active					
880	Rhode Island	#29388	1904	0-6-0	19x26"	51"
	Re 2343—Sc 12-1935					
881	Rhode Island	#29196	1904	2-6-0	20x28"	63"
	Re 368—Active					
882	Rhode Island	#29197	1904	2-6-0	20x28"	63"
	Re 369—Sc 3-31-1935					
883	Rhode Island	#29198	1904	2-6-0	20x28"	63"
	Re 370—Sc July 1928					
884	Rhode Island	#29199	1904	2-6-0	20x28"	63"
	Re 351—Active					
885	Rhode Island	#29200	1904	2-6-0	20x28"	63"
	Re 352—Sc 3-31-1935					
886	Rhode Island	#29364	1904	2-6-0	20x28"	63"
	Re 353—Sc 3-31-1935					
887	Rhode Island	#29365	1904	2-6-0	20x28"	63"
	Re 354—Sc 1-31-1935					
888	Rhode Island	#29366	1904	2-6-0	20x28"	63"
	Re 355—Active					
889	Rhode Island	#29367	1904	2-6-0	20x28"	63"
	Re 356—Active					
890	Rhode Island	#29368	1904	2-6-0	20x28"	63"
	Re 357—Active					
891	Rhode Island	#29369	1904	2-6-0	20x28"	63"
	Re 358—Active					
892	Rhode Island	#29370	1904	2-6-0	20x28"	63"
	Re 359—Active					
893	Rhode Island	#29371	1904	2-6-0	20x28"	63"
	Re 360—Sc Sept. 1929					
894	Rhode Island	#29372	1904	2-6-0	20x28"	63"
	Re 361—Active					
895	Rhode Island	#29373	1904	2-6-0	20x28"	63"
	Re 362—Active					
896	Rhode Island	#29374	1904	2-6-0	20x28"	63"
	Re 363—Active					
897	Rhode Island	#29375	1904	2-6-0	20x28"	63"
	Re 364—Active					
898	Rhode Island	#29376	1904	2-6-0	20x28"	63"
	Re 365—Active					
899	Rhode Island	#29377	1904	2-6-0	20x28"	63"
	Re 366—Sc 1-31-1935					
900	Rhode Island	#29378	1904	2-6-0	20x28"	63"
	Re 367—Sc Nov. 1927					

In the new series of numbers of 1904, the following engines were assigned the above numbers:

760-769	N-3b	Grant	1883	18x24" 58" 106000	Ex Nos. 1030-1039
770-772	N-3b	"	1882		1015-1017
773	N-3b	Rhode Island	1882		1021
774	N-3b	"	1882		1026
775	N-3b	"	1882	18x24" 58" 100000	Ex No. 978
776-778	N-3b	"	1881		988- 990
779-780	N-3b	"	1881		992- 993
781-784		Vacant			
785	N-3a	Hinkley	1880	18x24" 58" 100000	980
786	N-3a	"	1880		987
787	N-3a	Rhode Island	1880		979
788	N-3a	"	1880		983
789	N-3a	"	1879		911
790-799		Vacant			
800	G-4a	Baldwin	1904 #	24788 21x26" 73" 151000	
801-802	G-4a	"	1904 #	24793-94	
803-805	G-4a	"	1904 #	24802-04	
806-808	G-4a	"	1904 #	24807-09	
809	G-4a	"	1904 #	24814	
810	G-4a	"	1904 #	24820	
811-812	G-4a	"	1904 #	24825-26	
813-815	G-4a	"	1904 #	24830-32	
816-817	G-4a	"	1904 #	24837-38	
818	G-4a	"	1904 #	24854	
819	G-4a	"	1904 #	24755	
820-825	G-4a	"	1905 #	24986-91	
826-827	G-4a	"	1905 #	25009-10	
828-829	G-4a	"	1905 #	25013-14	
830-831	G-4a	"	1905 #	25047-48	
832-833	G-4a	"	1905 #	25068-69	
834-835	G-4a	"	1905 #	25081-82	
836	G-4a	"	1905 #	25112	
837-838	G-4a	"	1905 #	25132-33	
839	G-4a	"	1905 #	25167	
840	G-4a	"	1905 #	25196	
841	G-4a	"	1905 #	25212	
842	G-4a	"	1905 #	25243	
843-844	G-4a	"	1905 #	25291-92	
845	G-4a	"	1907 #	30831	
846-849	G-4a	"	1907 #	30909-12	
850-857		Vacant			
858	G-4b	Baldwin	1904 #	24824 15&25x26" 73" 161000	
859	G-4b	"	1904 #	24758	

When this order was placed with the Baldwin Works it was the intention of the New Haven to assign the engines of this group to numbers already vacant. Thus, the first six engines were numbered 838-843 but changed before leaving the Baldwin Works. Similarly, the 819 was to be numbered 858 and the 828-829 were to be numbered 308-309. These engines, when new, were assigned to Shore Line service, a service that was rapidly growing in speed and weight of trains. In three years, however, these engines were to be replaced by the first group of Pacific types. In later years, these engines were rebuilt with outside valve gears, were superheated, new frames were applied and, in some instances, new fire-

boxes. The present dimensions are 22x26" cyl., 73" drivers and weight of 174860#. The two Vaucain compounds were made simple engines and classified as the others. Assigned to the eastern end of the road, they have given good service and ten years ago, were capable of handling as many as seven steel coaches. The following numbers of this group were scrapped in 1935: 800-803; 806; 811-813; 816; 819; 823; 826; 830-831; 835; 838-841; 844; 848 and 858-859.

It was the intention of the road to assign nine other engines in this series, but they were shortly assigned other numbers and they need not be recorded here. No other numbers in the final assignment were made between 860 and 899.

The next group of engines to be listed of the New Haven locomotives will be those from the New York & New England R. R.

History of the Northern New York Railroad

By LAWRENCE DOHERTY

IT MAY be difficult, but let us try and imagine Northern New York State in 1830, the year of the first agitation for a railroad across it. A huge sprawling territory, sparsely settled but rich in the products and natural resources most in demand at the time; wooded mountains, rushing rivers, a country into which civilization as we know it, had hardly penetrated. Financially, there was little or no liquid capital, a system of barter and exchange being in order. Although towns were numerous, considering the country, none could boast two thousand souls.

There had been, previous to 1830 several movements on paper, for a canal from the St. Lawrence river to Lake Champlain, the most nearly successful of these having been fostered by Judge Raymond at a meeting in Odgensburgh in 1823. Governor Dewitt Clinton, in his annual message to the Legislature, had commended the project in 1825; however, eventually seeing that such a project was impractical, the idea was finally dropped.

Feeling rather aggrieved the worthy citizens of Northern New York now began to agitate a railroad, evidently of the mind that it was entitled to particular consideration, as a section, because of that disappointment. The railroad was to follow the line of the lost canal, as if the isolation of the region, its difficult terrain, and its poverty both in means and population were no serious obstacles. Railroad mass-meetings were held and the legislature was importuned year after year until finally, in 1836, a "Lake Champlain and Odgensburgh" Railroad Company was organized with a capital of \$800,000. Failure to subscribe the necessary capital caused this venture to collapse as had former ideas. Finally, in the session of 1845, Messrs Hiram Horton, John L. Russell and Asa L. Hazelton representing this section, succeeded in wresting a charter from the legislature, the Governor's signature being affixed barely twenty minutes before adjournment.

This Charter established the Northern New York Railroad Company with a capital of two million dollars, dated May 14th, 1845. In 1846 the company organized at Odgensburgh, with George Parish as President, a board of twelve directors, with S. S. Walley as Treasurer. Bonds having been sold in the required amount, contracts were let and work started at last.

It is interesting to note that the greatest opposition to the route came from New York City, feeling as they did that such a route would draw away business from them, while the Boston and New England capitalists had sagacity enough to see the great advantage which their section would derive from such a route, opening as it did, not only the rich undeveloped section of northern New York, but the rich grain area of the west. It is doubtful whether the bonds could have been sold had not these men come to the aid of the road.

The route was surveyed by James Hayward of Burlington, Chamberlain, Worreal & Co. had the contract to build from Odgensburg to Ma-

lone; while Sewall F. Belknap, built east to Rouses Point. Work was begun at both terminals in March 1848. By fall the line had extended to Centerville (now Moore's) west from Lake Champlain. Late in 1849, it had reached Ellenburgh; in June 1850, Chateaugay; October 1st, Malone, and in the same month completed thru, the last work being done near Deer River bridge in the town of Lawrence. Estimates had placed the cost of the road at \$1,750,000 while the actual cost was \$5,022,121 31 for the 117.16 miles.

The following construction data was taken from an old survey map and serves to indicate that construction was difficult. Starting at the end of a 1650 ft. pier (which was later to become a part of the Lake Champlain bridge) which is 84 ft. above tide water, the road climbs to 1,146 ft. in the 37.99 miles to Summit, now Churubusco, to drop again to 239 ft. in the 79.17 miles to Ogdensburgh on the St. Lawrence river. At Ogdensburgh some fifty acres of land were graded and re-claimed from the river at Mile Point, the fill material having come from the "Deep Cut" there, as well as other cuts east. Least radius curves are 3,000 ft. except one at Malone, of 2,000 ft. at the station. Heaviest grade per mile going east 27 ft; going west 40 ft; west of Summit no grade more than 27 ft. per mile, yet at nearly all points, both east and west, there is a constant grade.

The first thru train from Rouses point to Ogdensburgh arrived on Sept. 20th, 1850, carrying officials of the road, the train being in charge of engineer John Scharier. This train was immediately followed by another loaded with wildly cheering citizens from points along the line. The latter was in charge of J. R. Ames. All along the line cannons boomed to notify of the approaching trains, banquets were held, speeches made amid wild cheering crowds who lined the tracks. One of these cannons was the famous "Long Tom", the seizure of which by the Canadian authorities from an American boat at Prescott very nearly precipitated war between England and the United States several years previous.

The General Offices of the road were established at Malone. The Officers and Directors of the company were, T. P. Chandler, President; R. J. Shaw, Benj. Seaver, H. M. Holbrook, H. G. Kuhn, Isaac Spaulding, G. V. Hoyle, Hiram Horton, John L. Russell, Geo. N. Seymour, H. Van Rensselaer, James H. Titus and Samuel J. Beales, Directors. J. H. Hopkins was Secretary, Wm. T. Eustis, Treasurer and Chas. L. Schlatter, Supt. The general offices remained at Malone until 1870 when they were removed to Ogdensburgh.

Next followed a tremendous fight for the right to cross Lake Champlain by bridge from Rouses Point, to connect with eastern roads. Simulating apprehension that such a structure would impede navigation of the lake, as well as restrict passage to a United States fort located just north of the proposed route, but in fact actuated by a fear that if built, all of the products of this section would seek a market in Boston rather than New York, the Legislature failed year after year to grant the privilege. It was also feared that Northern New York merchants would trade in Boston rather than in New York City. Finally, after pressure by Wm. A. Wheeler, later Vice President of the United States

and a resident of Malone, a concession to operate a 300 ft. floating draw was granted, though not until after the company had been refused permission to cross thru Canada. Excitement over this issue was great, greater in fact than had been the original hurrah about the road's charter. Thirty car loads of Maloneites went by special train to Ogdensburgh to attend a mass meeting where ten thousand persons gathered from all along the route to protest. The bridge bill finally passed the Legislature in 1849 and the floating draw was ready in July 1850. The present type of bridge (swing draw) was installed later, about 1860.

For the first few years of its life the Northern New York Railroad was very successful, both from a financial and from an operating standpoint. In the first eleven years of its operation not a passenger was killed or injured, certainly an enviable record. Rules were strictly enforced, equipment was well kept up, roadbed and facilities were of the best. Operating employees were carefully instructed and rigidly supervised by Mr. Chas. L. Slater, chief engineer and first operating superintendent.

As we have said, financially, the road was also successful the first few years, in contrast to later conditions. A page from the report of the year ending September 30th, 1877 gives total earnings of \$516,938.30 while expenses were but \$284,654.85, a balance of \$232,283.45, which is nice return on the investment. The road carried that year 118,640 paying passengers. Average weight of passenger trains, less occupants is given as 65 tons, while freight trains, less freight, 205 tons, while a total of 241,591 tons of revenue freight was handled.

In connection with its line, the railroad ran a marine railway with a ferry and freight service at Ogdensburgh. The marine railway was the first in operation on the St. Lawrence river. The steamship company called the Northern Transportation Company was organized in 1855, also incorporated in Ohio in 1862. It operated several large and many small boats, the first of the larger ones having been rented from Crawford & Co. and called the *Oswego*. In 1852 this line handled 30,000 tons of flour alone eastward and 20,000 tons merchandise west, as well as passengers both first and second class. The Marine railway, called the Ogdensburgh Marine Railway Co., was formed Sept. 29, 1852, under provisions of an act of Feb. 17th, 1848. The first ferry boat in service was called the *Transit*.

It might be well to pause a moment to clear up the matter of the first refrigerator car. Various claims have been made that the original "refer" belonged to various roads. In addition, an article in a railroad magazine within a year or so gives approximate data. The first refrigerator car was constructed at the Northern's shops at Ogdensburgh and moved in thru freight on July 1st 1851 from Ogdensburgh to Boston with 8 tons of iced butter. To Mr. J. Wilder, conductor of that train, goes credit for the "fixing up" of the car. "Fixing up" is correct as it was a rebuilt standard N. N. Y. R. R. car whose number was either 304 or 804 (the record is difficult to read). The work was accomplished under the joint direction of Mr. Wilder and Mr. Slater, the Superintendent. Other cars were built or rebuilt at once, so that the famous "Butter Train" every Thursday morning came about, bringing immeasurable

financial benefit to the towns along the line, as well as to the people elsewhere.

I regret that I am unable to furnish a complete roster of the roads' motive power. However, I believe this list to be correct for the year 1853. No. 1 *Chateaugay* (first engine to run into Malone) No. 2 *Malone*, No. 3 *Ogdensburg*, No. 4 *Ottawa* (first to cross the Lake Champlain bridge) No. 5 *Deer*, No. 6 *Adirondack*, No. 7 *Huron*, No. 8 *St. Claire*, No. 9 *Frontenac*, No. 10 *Champlain*, No. 11 *Scharier*, (named in honor of the first engineer to operate a thru train over the road) No. 12 *St. Lawrence*. I have only fragmentary word-of-mouth data on the types and specifications of these engines, so until more is known, I will not attempt to give data, tho I would appreciate any information on them. I am told that there was another called the *Saranac*, used by and later sold to, the Plattsburgh & Montreal railroad, during construction of that road, which connected with the Northern at Moores Junction, then called Centerville.

Another fact worthy of note is permanency of construction of the buildings erected by the road. There are at present many of the original structures built in the 1850's, such as the engine house, shops and the freight house at Malone, etc. Almost without exception, the original piers of the bridges are still in service. When it is remembered that the Northern was prosperous only for the first few years of its existence, and since during adverse or little profit periods only the necessities are at all maintained, we are indeed impelled to compliment the original builders of this road. I lived, for instance, for several years in the house, rebuilt of course, which had been the original Northern station at Malone.

We should not pass up a short discussion of the original grain elevator at Ogdensburg, as it certainly was a marvel of its time. It was a huge affair, built on piles in 14 ft. of water, containing 42 bins each 30 ft. deep, capable of storing 4,000 bushels apiece. Each bin was connected to one of eight chutes capable of delivering a ton of grain per minute to any or all of the ten cars that could be loaded at once. Each car set on a platform scale of its own so that a weight check on contents could be had at any time. Within the building was a turntable for turning cars. The elevators were driven by steam and capable of handling 18,000 bushels daily, a very efficient outfit in that day. On the water side was a double slip to allow boats to enter the building to unload. The building was designed by Mr. F. Pelletier, draftsman of the company. The elevator burned in 1865, being replaced by two more which again burned in 1877. These in turn were replaced by one of 600,000 bushel capacity, designed by Abraham Klohs. It, too burned in 1890, to be replaced by one of 1,000,000 bushels capacity, which likewise burned in 1910, but has been replaced by an even larger and better one.

The joy and mighty hopes with which the building of the Northern Railroad had been received were succeeded by completion of other roads towards the south which brought a reduction in net earnings. In 1864 the road was incorporated as the Ogdensburg & Lake Champlain Railroad Company, the stock being the second mortgage bonds. Thus the Northern New York Railroad Company ceased to exist, and here stops our work, for the present at least.

In conclusion, the Northern Railroad developed the upper part of New York State, it opened up the vast West to the East by providing an easy route around the one great navigational barrier, the rapids of the St. Lawrence River, which had, for centuries blocked easy east-west transportation. "It would be idle to attempt to determine the local benefits of the building of this road but we do know that it brought the first 'hard cash' to the section, eliminating the barter system; it gave us an outlet for materials and produce needed by others, to our benefit; it gave to us the opportunities and necessities we so long lacked; it gave our man power work; our products, market; our factories, orders. Unquestionably, the benefits were many and manifold, as much to Malone as to any point on the line, to which came the central offices and shops of the road, providing as they did, employment for hundreds of our men, and bringing to our section some of our most reliable and industrious families."

EDITORS NOTE: In the Annual Report of the Northern New York R. R. for 1850-1852 will be found a roster of their locomotives which is reproduced herewith:

Sorel	Amoskeag	# 16	1851	16x20"	74"	23.77	tons
Richelieu	Taunton L. W.	# 62	1851	15x20"	66"	23.68	
Rideau	Essex Co.	—	1850	16x20"	66"	25.80	
Oswegatchie	Boston L. W.	#260	1850	15x18"	66"	21.52	
Deer	Kirk	—	1850	16x20"	68"	25.35	
Trent	Essex Co.	—	1851	15x18"	60"	20.50	
Welland	Essex Co.	—	1851	15x18"	60"	24.90	
Ottawa	Taunton L. W.	# 25	1848	15x18"	60"	21.75	
Ontario	Globe L. W.	—	1850	15x20"	60"	22.85	
Ausable	Boston L. W.	#277	1850	15x18"	60"	20.50	
Saranac	Boston L. W.	#270	1850	15x18"	60"	20.50	
La Grasse	Boston L. W.	#276	1850	15x18"	60"	20.50	
Chateaugay	Boston L. W.	#234	1849	14x18"	60"	17.35	
Niagara	Essex Co.	—	1852	15x24"	54"	26.20	
Michigan	Essex Co.	—	1852	15x24"	54"	26.10	
Raquette	Boston L. W.	#300	1851	16x20"	54"	23.41	
Erie	Boston L. W.	#299	1851	16x20"	54"	23.41	
Superior	Globe L. W.	—	1851	16x20"	54"	22.20	
Genesee	Essex Co.	—	1851	15x20"	54"	24.88	
St. Clair	Essex Co.	—	1851	15x20"	54"	24.32	
Huron	Essex Co.	—	1851	15x20"	54"	24.88	
St. Lawrence	Boston L. W.	#248	1849	16x20"	54"	22.40	
St. Regis	Boston L. W.	#281	1850	16x20"	54"	22.40	
Champlain	Boston L. W.	#236	1849	15x20"	54"	19.75	
Salmon	Boston L. W.	#261	1850	14x20"	48"	17.25	
Little Salmon	Boston L. W.	#255	1849	11½x20"	48"	13.80	
Little Trout	Boston L. W.	#262	1850	11½x20"	48"	13.80	
Chazy	Hinkley & Drury	# 47	1845	11½x20"	54"	?	

The "Ottawa" was purchased from the Norfolk County R. R. in 1850 and carried the name "Waterford" on that road.

The "Chazy" was purchased from the Old Colony R. R. in 1849 and carried the name "Mayflower" on that road.

All engines have two pairs of drivers save the "Chazy" which has only one pair.

Historical Sketch of Dearborn Station

Paper read by G. C. HUGEL, Chief Draftsman, Chicago & Western Indiana Railroad Co., before the joint meeting of the Engineering Division of the Western Society of Engineers and the Chicago Chapter, Railway & Locomotive Historical Society, October 21, 1936.

THE history of this station began with the conception of the idea in 1879 when new railroads were being constructed at a furious pace, with a number of these headed for Chicago. Many of the farsighted began to conceive plans for new terminal facilities in the city to accommodate these new lines. At this time, the Chicago, Danville and Vincennes Railroad (now the Chicago & Eastern Illinois R. R.) had its northerly terminus at Dolton, Illinois, about 17 miles south of Madison Street, Chicago, with its trains entering the city from that point over the Pittsburgh, Cincinnati, Chicago & St. Louis Ry. to a passenger terminal located at Clinton & Carroll Streets. This entrance into the city being very unsatisfactory, Mr. F. W. Hueidekoper, the President of the C. & E. I., together with John W. Brown, a railroad contractor, conceived the idea of building a new railroad from Dolton straight north into the city which would furnish a better entrance for the C. & E. I., so these two, together with others, incorporated the Chicago & Western Indiana R. R. under date of June 5, 1879. With the tremendous expansion of railroad construction and need for increased terminal facilities in Chicago, the Grand Trunk Junction Railway Co. now the Grand Trunk Western R. R. and the Wabash, St. Louis & Pacific Ry. Co. now the Wabash, applied to the C. & W. I. for use of its lines as their terminal in Chicago. The C. & E. I. was the first tenant of the C. & W. I. under a lease dated October 24, 1879. The Wabash second with a lease dated October 25, 1879 and the Grand Trunk third with a lease dated July 1, 1880, then two other new lines building to Chicago became tenants, the Chicago & Atlantic Ry. Co., now the Erie R. R., became the fourth tenant under a lease dated November 1, 1880, and the Louisville, New Albany Ry. Co., now the Monon, became the fifth tenant under a lease dated December 1, 1881. These five tenant lines flourished from the start and need for larger terminal facilities became very urgent and it was clearly foreseen that large bond issues would be necessary to obtain funds with which to provide these much needed facilities. The J. H. Brown syndicate had not the resources and could not establish the credit necessary for the greater bond issues, therefore, a deal was made whereby the syndicate sold their interests and the present C. & W. I. was formed; each of the five tenant companies mentioned above became the owners, each company owning 1/5 of the capital stock, with the road operated for their benefit as a joint co-operative terminal with no net earnings except as might be derived from rentals to be paid by future tenants or from any other additional source.

Construction of the railroad progressed rapidly since its incorporation in 1879 with the first temporary passenger terminal located in the vicinity of Archer Avenue.

In May 1880 the road had completed construction of its line from Dolton, Ill. and State Line near Hammond, Ind., to its northern terminus, a temporary depot located at the northwest corner of 12th and State Streets, but in a few months these facilities became inadequate, making it necessary to move, so these facilities were moved into a colored Baptist Church on 4th Ave. (now Federal Street) midway between Polk and Taylor Streets, and this continued to be the passenger terminal station until the completion of the present station.

During the course of construction, city ordinances were passed by the City Council of Chicago granting the C. & W. I. the right to extend its railroad further north than 12th Street, in fact it was granted the right to utilize for terminal purposes the property between 12th and Harrison Streets lying between 3rd Ave. (Plymouth Ct.) on the east and the parts of blocks between 4th Ave (Federal St.) and Clark St. on the west.

The railroad then proceeded to purchase large parcels of property and with the view of possibly locating a new station on the south line of Van Buren St. a large amount of property was acquired between Harrison and Van Buren Streets, but strenuous opposition developed in the City Council against the construction of a new railroad station on Van Buren Street, and costly litigation ensued, but during the year 1883 these difficulties were removed by an agreement with the City Council under which the railroad waived any rights it was granted under earlier ordinances to run its tracks any further north than Polk St. The city, however, agreed that it would open up Dearborn Street from Jackson St. to Polk (Dearborn Street up to this time stopped at Jackson St.).

The need for a greater and larger passenger terminal had increased to such a degree by this time that the railroad definitely decided to locate its new passenger station on the south line of Polk St. between 3rd and 4th Avenues. Thus having a definite location for the new station, the plans were drawn and the contract was let for its construction.

During the years 1883 and 1884, the construction of the new station and trainshed progressed rapidly and the station was open and ready for business in May 1885 and the trainshed completed in October 1885.

The station was a three story brick and stone building with full basement, having a frontage of 212 feet on the south side of Polk Street between Federal and Plymouth being 45 feet deep with a wing on the west along the east side of Federal St. 135 feet in length and another wing on the east along the west side of Plymouth Court 85 ft. in length. The general architecture with its steep sloping hip roofs on both station and clock tower, together with its dormer windows, and louvered roof vents was said to be a replica of an old public building in Luxemburg. The first floor of the station was at sidewalk grade, being used as waiting rooms and ticket office, while in the basement was a large restaurant and a barber shop. The area to the south of the main station and between the east and west wings was an open concourse about 135 feet long by 30 feet wide, with an ornamental iron fence and gates dividing it from the platforms and station tracks. There were 10 north and south station tracks in pairs with low platforms between the pairs. The concourse,

station tracks and platforms were covered with a timber trainshed about 165 feet wide and 700 feet long, made up of timber and wrought iron rod trusses on about 16 foot centers with a louvered monitor at the top. The main shed or truss span was about 65 feet supported on steel columns, to which was attached on each side, light sloping shed roof trainsheds which covered the remaining tracks to east and west.

Immediately south of the west wing of the main station and along the west side of Plymouth Court with a frontage of 310 feet was constructed a one story brick inbound and outbound baggage room about 40 feet wide with basement in which was located the heating plant. To the south of these baggage rooms was constructed the express buildings. The express and baggage business was handled on the east side along Plymouth Court and the U. S. Mail on the west side along Federal St. in the south end of the West wing of the main station.

The second and third floors of the main station were used for general offices of the company and tenant lines.

In 1887, the Atchison, Topeka & Santa Fe purchased and leased properties of the Chicago, Santa Fe and California R. R. and became a tenant of the C. & W. I. R. R. In 1891 with all of Chicago getting in readiness for the Columbian Exposition it became necessary to make more extensive changes and rearrangement of station tracks, throat tracks, switching leads, baggage handling facilities, ticket office, etc. in anticipation of the increased volume of business. These changes were made in 1891 and 1892, and in 1893 an electric plant was put in operation in the station thus eliminating the gas lighting system which had been the means of illumination up to this time.

The passenger terminal layout up to this time covered the territory between Federal and Plymouth and 12th to Polk. The tenant companies had from time to time constructed inbound and outbound freight houses and team tracks to the east and west as well as to the south. The express company had also constructed more buildings to the south of those on the west side of Plymouth Court and south of the baggage rooms. The railroad added the second story to the baggage rooms on Plymouth Court for additional office space. Likewise, changes were made to the south of the west wing of the main station for handling more effectively the increased U. S. Mail business. Business continued to increase and operation became more and more congested so in 1914 the old tenement houses fronting on the east side of Plymouth Ct. between Polk and Taylor Sts. were razed and an Annex Station constructed on Polk St. immediately east of the main station and east of Plymouth Ct., which was a one story brick structure consisting of a waiting room 100 ft. long by 30 ft. deep immediately south of which was a concourse approximately 100 ft. by 20 ft., being served by six north and south station tracks served by low platforms with umbrella sheds.

In 1920 the open concourse of the main station was enclosed and heated to increase waiting room space.

On December 21, 1922 a fire destroyed the roof attic, and third floor of the main station. It was reconstructed in a few months, however the architectural appearance was greatly changed as the steep pitched roofs were replaced by flat roofs with surrounding parapet walls.

Business continued to increase, operating conditions became more congested and trains longer. To meet this demand for increased facilities the greater portion of the old store buildings and tenement houses fronting on the west side of State Street south of Polk Street were razed in 1924 and constructed in this area was a timber platform and canopy together with 4 tracks and concrete driveways to improve facilities for handling U. S. mail. The station tracks, throat tracks, station and annex leads to the south of Taylor Street were all rearranged, the station tracks and platforms being lengthened and covered with steel trusses from which were suspended steel canopies over the extended platforms to the south of the old trainshed. In addition to the trainshed and track changes the old concourse was removed and a new waiting room was constructed in its place between the east and west wings of the main station and to the south of this new waiting room was constructed a new enclosed and heated concourse. These changes, completed in 1925, increased waiting room accommodations as well as track and platform facilities. There were no changes of any consequence until 1930 when it became necessary to provide more adequate facilities for handling the U. S. Mail which up to that time had been handled on open platforms along the east side of Federal St. south of Polk St. and on the platforms west of State St. and south of Polk St., This was accomplished by the construction of a reinforced concrete and brick structure having a 100 ft. frontage on Polk St. and 500 ft. on State St., consisting of a two story head house 100 ft. by 175 ft. with truck unloading platform on the alley side south of Polk St. and served by four north and south tracks with reinforced concrete high platforms between tracks, the tracks and platforms being covered with a flat roofed steel and concrete trainshed 100 ft. wide by 350 ft. long, with 18" wide continuous smoke vents over the center of each track.

A Pen Picture

RAILROAD FAN'S EXCURSION TO FORT BRAGG,

SUNDAY, APRIL 10, 1938.

By D. L. JOSLYN

LEAVING San Francisco promptly at 7:15 A. M. Sunday Morning, April 10th, on the Northwestern Pacific RR Ferry "Cazadera", our route was along the water front of San Francisco and rising back of the wharves was the picturesque sky line of the city with the historic and world famous Telegraph Hill dominating the scene. Off to our rear right, hazy in the morning air we can see the massive bay bridge and historic Goat Island, with just a faint glimpse of Treasure Island where the 1939 World's Fair is to be held, and beyond the towers of the bridge we can just faintly trace out the sky line of Oakland and Berkeley. As we round a point in the shore line we pass the entrance from the bay to Fisherman's Wharf and a little further on we look down upon the peninsula where the Panama Exposition was held during 1915. One would scarcely know that an exposition had ever been held there were it not that the Palace of Fine Arts still stands, sole survivor of the fair buildings. Beyond the Palace of Fine Arts can be seen the Presidio, the military reservation of our Uncle Sam.

On our right we pass close to the grim gray prison on Alcatraz Island, a bleak rock that rises sheer from the cold waters of the bay, and a little further on we see Angel Island where Uncle Sam maintains an immigration station. To our center left we see the Golden Gate bridge with the tops of its massive towers hidden in the fog, and beyond the bridge is the Golden Gate with a liner coming in from some foreign port, with an air of mystery surrounding the liner so vague in the mists of the morning. Straight ahead is Sausalito, our destination, and rising up from the town are the Marin County hills, with the world famous Mt. Tampais raising its head above all else, and while the peak is hidden in the fog, we can, nevertheless, visualize its peak dominating the country for miles around. To our right front we can see Tiburon, where once the ferries docked, and further on is Point San Quentin with just a faint glimpse of the gray prison visible.

Our boat glides slowly into her pier, and we are soon aboard our special train consisting of one baggage car with lunch counter and refreshment stand, three wooden coaches, (secured by an effort) one steel coach and an observation car. We are speedily on our way with the little eight wheeler No. 23 on the front end and a helper engine to help over the San Rafael hills. We ramble along at a good clip among the low foot hills and across the salt marshes, with the California wild poppy, the lupin and the blue bells vying with each other to lend color to the green of the fields. We pass through orchards of apricots, peaches, pears and plums which give a fitting foreground to the dark green of the distant hills.

The salt marshes are passed over with slackened speed, as the ground here is more or less spongy and speed must of a necessity be restricted. The old right of way of the North Pacific Coast narrow gauge RR can be seen winding away among the hills, and the branch line of the N. W. P. to San Quentin joins the main line at San Quentin Junction. The old ferry boat "Encinal" of the Southern Pacific, that plied the waters of the bay between San Francisco and the east bay district for so many years, is located here in a pond of fresh water, and with her boilers and machinery removed, is a night club and looks odd sitting out there in the green fields. The town of San Rafael is left behind and our train rambles along at a good 55 mile clip, the wooden coaches creak and groan, and every one is highly delighted with themselves and the world in general. Nature is smiling, all dressed in her bright green garb of spring, the sun shines brightly, and small villages that we pass through look so spotless and withal so coy and shy, that it seems a shame to disturb the peace and quiet of their Sabbath rest.

We have now reached the far famed Sonoma Valley, where the grape and the prune hold sway, and orchards and vineyards can be seen stretching back from the track in each direction. As we pass along we enter the Valley of the Moon where Jack London built his castle of Redwood. But what is this place we pass through? Chickens, countless thousands of them, mostly White Leghorns; chicken houses, chicken fences, feathers and eggs, and we finally pass through a station, at each of which there is a giant White Leghorn hen, each with a market basket under each wing, and the inscription reads "Petaluma, the egg basket of the world". So we come to Santa Rosa, the home town of the late Luther Burbank the plant wizard, and who is there that has not heard of Luther Burbank.

At Santa Rosa we leave our helper engine behind and go merrily on our way, the little 23 snaking the train along in fine shape. She seems to feel the importance of her job in the way she handles the train. We are passing through orchards of prunes, some figs, English walnuts and the vast vineyards; for in this territory the grape and prune are King and Queen and wine is produced on a large scale. Between the vines and trees the California wild poppy holds full sway making a carpet of gold, while here and there the lupin and bluebell dispute the right of the poppy to all the territory. Our conductor informs us that where we are now hitting a good pace of 50 miles per hour, not longer than three weeks ago there was no track, it having been washed out by the torrential rains of February and March.

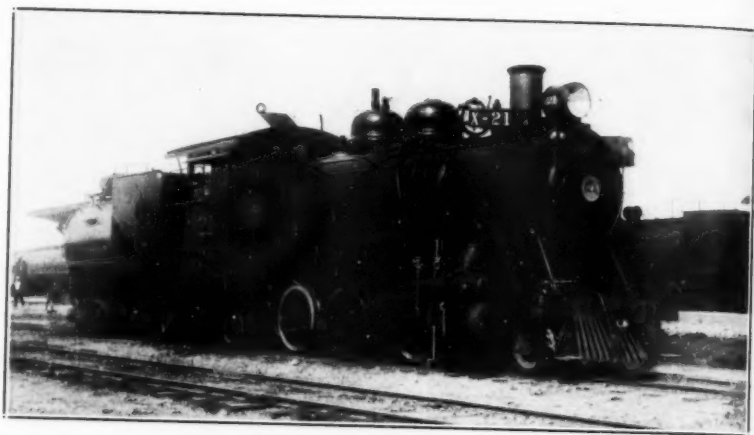
We begin to ascend a slight grade and our speed is somewhat slackened, but the little 23 is holding her own, and in due time we come to Cloverdale. Here are great herds of contented cows chewing their cuds and looking at our train in mild wonder. After a short rest to allow the 23 to fill her water tank, we are again on our way towards Willits, and now we look out upon a grand sight. Our tracks are a little elevated above the surrounding country and we look out over the tops of a vast apple orchard in full bloom. A lovelier sight never greeted mortal eye. The fragrance of the blossoms penetrates to the inside of the cars with a perfume to delight our nostrils.



The Excursion Train at Willits



California Western #17.



California Western #21.



California Western #22.

But here is Ukiah and our faithful little 23 will have to have assistance to climb up to Willits, so the S. P. engine 2514 is hooked on ahead of the 23 and away we go. The train winds in and out of canyons, across fearful chasms, and around the sides of hills so steep that a mere shelf is all the railroad rests on, a shelf cut into the side of the hills. As we round the various curves, ever and anon, many beautiful vistas open before and below us, and far down in the ravines and canyons we can see the redwoods, that look like saplings so far down are they.

Off to the north, we catch a glimpse, through openings in the hills, of the snow clad Siskiyou mountains. The air is becoming crisper as we pass along and open car windows are being closed. Our speed has been reduced to 15 miles per hour and we know from the feeling of weight against our back that we are ascending an ever increasing grade. Rounding one long curve, we stop, then back around the "Y" into the Willits station of the California Western R. R. and Navigation Co. As we come to a full stop at the beautiful Redwood station, our train is instantly deserted, and from every vantage point, from the tops of cars, from the top of the station, from out in the fields and from any space that can be found, cameras are trained on the special. Enthusiasts are darting hither and yon to shoot "that cute little yellow caboose," "that gas motor car," "that Redwood station." "Hey you! out of the way there, I want to get that logging car!" The sun shines brightly, the air is crisp and bracing, and the spicy fragrance of the redwoods fills the air, making one feel twenty years younger, if that is possible.

The California Western has two locomotives, type 2-6-2, all ready. They are soon hooked to our special, air is tested, the whistle gives a long shriek and we are all aboard again, climbing a severe grade towards Fort Bragg. The summit is soon reached, our helper is cut off and the 2-6-2 California Western Engine No. 23, starts down towards the Noya Canyon. The California Western has been named the crookedest railroad in the U. S. and we can readily believe this. We wind in and out, round about and at one point go eight miles to gain a mile and a half.

As we descend, after reaching the canyon, we look upon some of the grandest works of nature that man ever beheld. The giant redwoods lift their stately heads above all surroundings, and in the eternal shade of their great trunks and foliage, beautiful lilies, and myriads of wild flowers are in bloom. The beautiful five fingered fern is seen in abundance and the women of the party are beside themselves at not being able to secure some of these ferns. The shy deer peek out of the brush at our train, their mild eyes full of wonder. Quail scamper up the ravines and the wild birds dart hastily away from the puffing Leviathan dragging its train along the tracks. The wheels of the cars set up a shrill remonstrance as they roll around the curves, and every person on board is looking out of window, all intent on not missing a single sight.

We finally reach the Noya River and the canyon of the Noya, and in 11 miles our train crosses the swift flowing river 32 times, the train weaving back and forth, ever seeking a safe place to get through the canyon. The wild flora is beyond description. Along the river the lacy and delicate maiden hair fern can be seen. The shy violets and the

modest buttercups are everywhere, the wild lilac is a little bolder and lifts its head higher, while the stately dogwood holds itself aloof as being better than the rest. Here and there among the trees we come to Sylvian nooks and Elfin dells, and it requires but a small bit of imagination to see the Fairies and Gnomes scampering on the greensward, or peeking out at our train, a monster that goes along belching smoke from its stack, and anon shrieking forth a discordant note that wakes the echoes far and wide. We keep our eyes on the Fairy scenes through which we are passing, fearful that we may lose sight of something, while the followers of Sir Isaac Walton are beside themselves as they see the elusive trout leap from the water after a fly or insect that has gotten too close to the water. For this is a fisherman's Paradise and during the season many beauties are hooked along the Noya River. The tree ferns are noticed coming up in patches here and there and the rhododendrons are full of buds and soon will be a sight to behold.

Finally, upon rounding a hill, we come out onto a natural plateau, and gaze upon a fair city that has the setting fit for a God of Olympus. Great hills rise back of the town to form a background of green, and at its feet is a fitting foreground of blue Pacific Ocean, with a soft breeze coming in across the town carrying on its breath the fresh odor of the salt water. A great shout goes up as our special comes to a standstill, auto horns are sounded with vigor, as the whole town has turned out to give us welcome. They have assembled a caravan of private autos and school busses to take us down to Casper and heading the party is none other than the genial Mr. Nelson, General Manager of the California Western R. R. But before we can enter an auto to go to Casper, serious business is in hand. Back of the station, sitting out in perfect order, are a number of locomotives, and it is required that we record an image of these locomotives on film. We proceed to do so, using all haste and in our haste very nearly not getting the pictures.

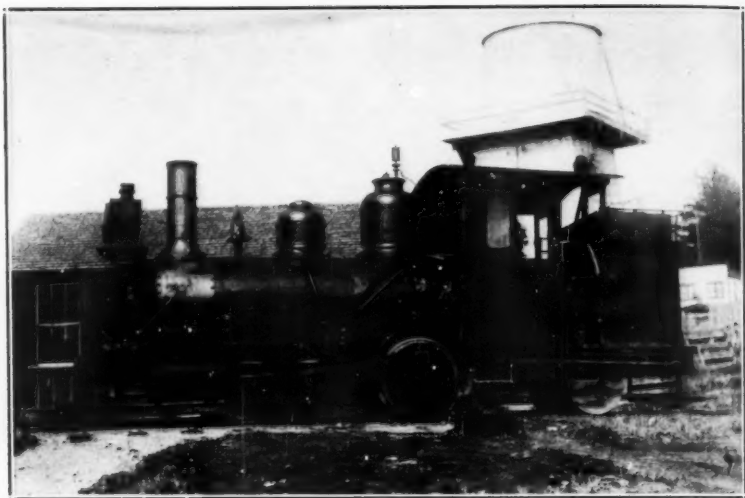
So, away to Casper, and here are two small giants with appropriate names, "Trojan" and "Samson," the latter with steam up and attached to three cars, the cars ornamented with benches, and we conclude, and our conclusion is correct, that the cars are for the special train on the Casper, South Fork and Eastern RR, to take our party out into the forest. But first we must have pictures of the two giants, and proceed to get them, and as there are about 150 others with the same thought in mind, it is no easy matter, but we manage to squeeze in and get a shot at the engines. Then there is the little "Daisy," which we record on film and away with the rest to the end of the yard where a little relic of yester-year sits and dreams of the long, long ago. The little "Jumbo," a crab type locomotive, built in San Francisco in 1869 and used to level the sand dunes of that city, later helping to build and to operate the street railroad out to the cliff house. A real old relic and fit for a museum, in fact a museum gem. We focus our trusty "Graflex" on the little lady and get her properly "Tooken" and then away to watch the crowd climb aboard the special train. The locomotive "Samson" never had a decoration such as she was now decorated with, for the crowd swarmed all over her and if it were possible for a locomotive to have any feelings, the



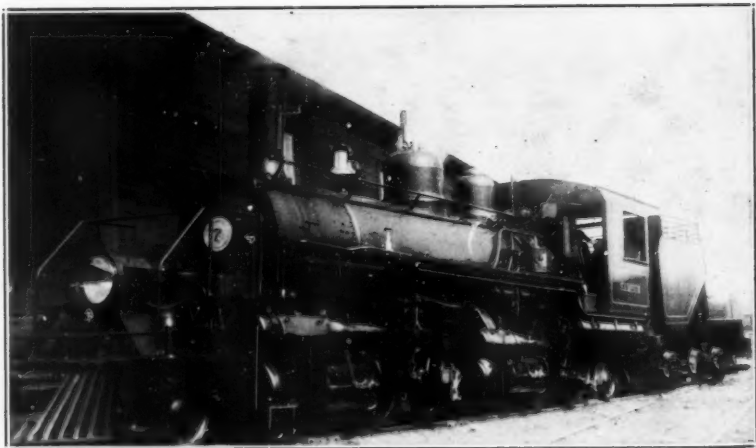
California Western #38.



Casper, South Fork & Eastern #1.



Caspar, South Fork and Eastern #2. "Daisy"



Caspar, South Fork and Eastern #7. "Samson."

"Samson" should have felt "literally astounded." By this time the cars were gaily decorated, the women of the party seated on the benches with the gallant gentlemen grouped around them, and some of the men sitting on the edges of the cars with their feet dangling in midair.

The signal is given, the engineer opens the throttle and a great shout goes up as those in the front of the locomotive are liberally doused with water from the stack. But away goes the special, nothing daunted by a little thing like that, every one is in high glee and each one feels that they are really railroading now. A short stop to look at the mill pond and the slide where the huge redwood logs are sent down striking the water with such force that the spray is sent into the air a hundred feet or more. We did not go on the excursion into the forest as we were interested in the yards and shops and wanted to have a little chat with some of the natives of Casper. From the latter we learned, that while lumbering is the principal industry in Casper and Fort Bragg, it does not constitute the entire activities of the locality, as fishing is well established and extensive, and that accounted for the strong piscatory flavor that permeated the atmosphere in places between Fort Bragg and Casper. Also apples are grown round about and are of fine flavor and quality. There are other industries which help to keep this part of the country before the eyes of the world.

The special train returns to Casper in due time and we are on our way back to Fort Bragg, and as we roll along the highway, we get many views of the blue Pacific. We never gaze upon the Pacific ocean, but with admiration and awe, and a feeling of smallness comes over us when we see the vast expanse of water. The blue waters with the white swells coming in with clock like regularity, the sea gulls wheeling, dipping and calling; the fresh smell of the salt water, and the great dome of the sky, curving down to meet the waters off in the distant purple hazed horizon; with mayhap a ship far out at sea, a tiny speck on the waters, and which seems to disappear from view, then re-appears and disappears, seemingly lost forever, when it will bob up where one does not expect it. And above all, there is the constant roar as the great swells roll in and break on the white sands or dash against the rocks, sending the white spray high into the air. With all the mighty roar, and constant agitation of the ocean, a calmness comes over one as they sit, stroll or recline on the beach. There is never a moment when the scene is the same.

But here we are back in Fort Bragg where the Chamber of Commerce has arranged with the women of the town to provide us with a hearty and substantial dinner of which we partake, as only hungry excursionists can, and while we have had the pleasure to sit at table of great banquets in palatial dining halls where many notables were present; and we have been fortunate to dine, deep in the heart of the forest with the hearty lumber jack, and we have attended many a lodge dinner; we can truthfully say, that we have never sat down at dinner with a group of folks who were better company, nor who enjoyed their dinner more, and who were more congenial and sociable, than the group with whom we dined at Fort Bragg that Sunday evening. The women of the town, "God Bless Them", provided a dinner befitting the hungry crowd that assembled to enjoy this feast!

What sound is this? It is the prolonged shriek of the whistle attached to the faithful locomotive that is to draw us back to Willits, and is a signal that it is time to go. So we bid good by to our genial hosts, and hastily climb aboard our special train and are soon in the lovely Noya canyon, and a more lovely sight one could not wish for. In the grey dusk of the evening the grand old redwoods are silhouetted against the blue sky above, while between the trees and the lower shrubs, deep down in canyons and ravines, things are just visible, while the swift flowing river can only be seen where the waters dash over or against big boulders, or pass over some fallen giant that seeks to stop the river in its mad dash to the distant ocean.

Darkness descends rapidly and we are at loss to understand this as the Pacific coast is noted for its twilights, and then we remember we are deep in the forest where the sun rarely darts its rays even in mid-day. A great orb of a moon rises in the eastern sky and lights the tops of the giant trees, and in open places the scene is bathed in the silver rays of the bright April moon. Shadows are cast in nooks and crannies, in dells and ravines, making an eerie scene that held ones attention, and brought back thoughts of long ago, of other days; and pleasant strolls in moonlit dells are vividly recalled, and we sit back and ponder on the long ago.

The crowd is hushed by the beauty of the moonlit vistas, and when the locomotive is faintly outlined against the moonlight, as we round the curves, we see the shaft of light from the headlight, piercing the darkness of the forest, lighting up for a brief second, some bold bluff or huge rock, or a group of trees, and the next second the scene is plunged in darkness again. All the while we can hear the short sharp bark of the exhaust with now and then the piercing shriek of the whistle which reverberates through the canyons, awakening echoes and disturbing the slumber of the wild life of the forest.

Willits is reached in due time, and after changing engines, we are off for Sausalito running rapidly and smoothly along, the crowd, many of them asleep, are very quiet, and the trainmen sit in a corner and converse in low tones, ever alert to any change in the sound produced by the running train in its rapid transit over the rails, and with uncanny intuition, the crew are out to receive orders or on some other operating business with the running of the train.

Sausalito is duly reached, the N. W. P. has held the ferry for us and we are soon gliding across the dark waters of the bay with the lights of San Francisco tracing out the streets and hills. We are soon at our hotel, and as we drop off to sleep, we dream of flowers, of forests, the ocean and the events of the day, but ever and anon our dreams will revert back to a scene; a line of locomotives set out in a row, proper distance apart and with the sun at the right angle, our camera is loaded with our favorite films, but struggle as we will we can not seem to get those pictures, and then all fades out and we dream no more.

We have been on many an excursion, on several fan trips and on parties to pleasant scenes. They were good, the scenery was beautiful, the crowd was gay and congenial, but the trip to Fort Bragg tops them all, and every one aboard voted it the best trip taken so far in this far

western country. Every thing worked out with clock like precision. There were no waits, no delays, and things moved with such rapidity that none of the party had time to find fault if any fault could be found.

This account of our trip to Fort Bragg was written by one who went on the trip, and who feels that in view of the fact that it was such a wonderful trip, a pen picture should be preserved for he feels sure that it will be quite some time before another trip as wonderful as this one will be run. And that all may know that he is grateful for the opportunity afforded him to go on this trip, he has set it down and will send to any one who was on the trip a copy free of charge, if the interested party will send to Mr. Merritt at 836 Alma Avenue, Oakland, a self addressed No. 10 envelope with a 2 cent stamp attached.

In conclusion, let us add, the Railway and Locomotive Historical Society was the first R. R. Historical Society founded. It has always maintained its high standard and its members are all serious minded men and women. It strives to fulfill its slogan of "LINKING THE PAST WITH THE PRESENT". The society is ready at all times to assist in any way that it can, and its large and valuable collection of Railroad material is open to be viewed by the public without charge. The Local chapter of which Gilbert H. Kneiss is the head, stands ready to render such assistance as it can and we welcome any and all serious fans at our meeting held each month, the second Tuesday, in the meeting hall at the Oakland Mole.

FINIS

Worth Reading

(Compiled by ELIZABETH O. CULLEN, *Reference Librarian*,
Bureau of Railway Economics, Association of American Railroads,
Washington, D. C.)

BOOKS AND PAMPHLETS

Along the Iron Trail, by Frederick H. Richardson and F. Nelson Blount. 206 pp. Illustrated. Rutland, Vermont, The Tuttle Publishing Co., Inc. Written primarily for railroad fans, this book surveys the history of railroads in the United States, development of motive power and of freight and passenger trains, safety, competition, "sand house talk" and concludes with a discussion of railroading as a hobby.

The Big Four—The Story of Huntington, Stanford, Hopkins and Crocker, and the Building of the Central Pacific, by Oscar Lewis. 418 pp. Illustrated. New York, London. A. Knopf. Bibliography pp. 413-418. Part appeared serially in the *Atlantic Monthly* under the title "Men Against Mountains".

The Clinchfield Railroad—The Story of a Trade Route Across the Blue Ridge Mountains, by William Way, Jr. 297 pp. Illustrations, Maps. Chapel Hill, North Carolina, University of North Carolina Press. " . . . The Clinchfield cuts athwart the Appalachian Mountains and crosses seven important divides between watersheds . . . Its development of moderate curvature and light grades is a notable work among the railroads of America . . ." p.xix. "The Clinchfield is the last of numerous attempts to cross the mountains and connect the Ohio with the South Atlantic . . . In order to make clear the topographical conditions, as well as the historical significance of the earlier projects . . . the country traversed by the trans-montane roads will be described and a brief statement made concerning the important cities of the South during the ante-bellum period . . ." p.xx.

The Evolution of Railways, by Charles E. Lee. 64 pp. Illustrated. Diagrams. London, England, The Railway Gazette. Reprinted from *Proceedings of Permanent Way Institution*, Great Britain and Railway Gazette. "The importance of this little book is out of all proportion to its size. That the origin of the chief artery of modern civilization should so long have been shrouded in obscurity is odd. Failing serious research, the railwayman or the railway amateur have been prolific in repeating plausible theories, many of which have now been disposed of by Mr. Lee's authoritative work, which . . . will before long be recognized as a railway classic . . ." Introduction by W. A. Willox, p.iii.

Histoire des Chemins de Fer Yougoslaves 1825-1937, by Dragomir Arnaoutovitch. 366 pp. Illustrations. Folding Maps. Paris, France, Dunod. A politico-economic and technical and industrial history of the Balkan Peninsula as well as the history of the railroads that now make up the Yugoslav lines that is unusually informative and readable.

A History of Transportation in Canada, by G. P. de T. Glazebrook. 475 pp. Folding maps. Toronto, Canada, The Ryerson Press; New Haven, Conn., Yale University Press, for The Carnegie Endowment for International Peace. ". . . The present volume represents an attempt to trace the story of transportation through the whole range of the history of Canada, describing the methods [which range from explorers' canoes to transeontinental railroads and airplanes], and relating them to the more general theme of the rise of Canadian civilization . . ." Foreword by H. A. Innis, p.v. #

Men and Iron—The History of the New York Central, by Edward Hungerford. 424 pp. Illustrated. New York, Thomas Y. Crowell Co. ". . . It is of the units that went to form the original New York Central—the lines east of Buffalo—that this book treats . . ." p.v.

Railroad Bibliographies—A Trial Check-List, August 1938, compiled by Bureau of Railway Economics Library, Association of American Railroads, Washington, D. C. 71 mimeo. pp. Part I lists chronologically bibliographies prepared by Bureau of Railway Economics Library, 1912-1938. Part II lists chronologically bibliographies compiled by others, 1822-1938. Part III lists compilers, pp. 60-63, and indexes contents by subjects, pp. 64-71. #

Report for the Year 1937, Kowloon Canton Railway, (British Section), by R. D. Walker, manager and chief engineer. 80 pp. Kowloon, China. "The period under review was marked by vicissitudes. It can be recorded as the most eventful twelve months in the history of the Railway. Abnormal occurrences in chronological order were . . .
"p. 4. They included the Sino-Japanese hostilities, involving 2½ months of constant bombing and constant reconstruction of the railroad, a typhoon, two wrecks, the opening of a through traffic route and an agreement for traffic over this route. Number and weights of bombs dropped, number of air raids, detailed on p. 8, while other "unusual" things to find in a railroad report are throughout the 80 pages.

The Village at the End of the Road—A Chapter in Early Indiana Railroad History, by Wylie J. Daniels. 112 pp. Illustrated. Indianapolis, Indiana. Indiana Historical Society. Its Publications vol. 13, no. 1. #

PERIODICAL ARTICLES

Defense of Transport Against Air Attack, by Wing-Commander E. J. Hodson, Inspector-General of Air Raid Precautions, Great Britain. ". . . various types of bombs . . ." pp. 276-277. "Control" of operations pp. 277-278; "Maintenance of Traffic" p. 278; "Repair of Damage" p. 278. "Protection of Employees" [and] . . . the Public" p. 279; "Road Transport", "Electric Power", "Docks and Inland Waterways" pp. 279-281. Discussion pp. 281-287. Journal of the Institute of Transport, May 1938, pp. 276-281.

Effect of Railways on Civilization—A Famous Speech Recalled—French Commemoration. "In a famous speech before the Chamber of Deputies in Paris in May, 1838, Lamartine, the celebrated French poet and statesman, spoke of the future of his country's railways . . . The influence of the railways . . . as outlined by Lamartine, have been outborne by the developments in the nineteenth and twentieth centuries . . ." *Modern Transport*, July 16, 1938, p. 6.

100 Years of Rail Mail Service. Act of Congress Designating All Roads as Post Routes Was Approved July 7, 1838. Illustrated. *Railway Age*, July 9, 1938, pp. 35-38.

Railroading—Life Takes a Long Look at Southern's Charlotte Division. Illustrated. Map "The Southern's Charlotte Division at Noon, April 8, 1938" p. 53. *Life*, May 2, 1938. pp. 51-60.

The Railroad's Part in Military Preparedness, by Col. W. F. Sharp and Col. Wayne S. Allen. *Pacific Railway Club Proceedings*, June 1938, pp. 4-15.

Routine Work of a Locomotive. Part I-II, by Frederick J. Prior. Illustrated. "From a comparatively simple machine of 100 years ago, we have evolved a monster, with some 15,000 parts, which must be transported up and down the railroad, inspected with untiring regularity, and replaced frequently . . . Approximately 40 percent of the locomotive's time is spent with the mechanical department, caring for running repairs, turning, its monthly boiler wash; and its annual vacation of 20 to 30 days is spent in the back shop . . ." p. 328. "Slow Freight Service" pp. 328-329; "Fast Freight Service" pp. 331; [Yard Service] p. 410; "The Engineer and His Work" pp. 329-330; "The Fireman and His Duties" p. 330; "Influence of Early Locomotives" pp. 330-331; "Locomotive Tenders Developed. . . . the first one was improvised in 1831 when the 'John Bull' locomotive was placed in service on the Camden & Amboy Railroad . . ." pp. 411-413. *Locomotive Engineers Journal*, May 1938, pp. 328-331; June 1938, pp. 410-413.

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Two Years of Books on Transportation, by George P. Baker. "... classified in this review under the headings Relations with the Government, Symposia, History, Urban, and Foreign . . ." p. 499. *Harvard Business Review*, Summer Number 1938, pp. 499-512.

New Books

RAILROAD MAN, By Chauncey Del French, 292 pages, $8\frac{1}{2} \times 5\frac{1}{2}$, illustrated. Published by The Macmillan Co., New York, N. Y. Bound in cloth. Price \$2.50.

Henry Clay French began his railroad experience as messenger and call boy, at the age of thirteen, for the old Hannibal & St. Joseph R. R. For over fifty years thereafter he saw active service as telegrapher, switchman, brakeman, fireman, conductor or yardmaster on the roads in the south-west and north-west.

The book gives us a good insight as to the methods of railroad operation during the last thirty years of the previous century. It describes the cow towns, mining camps and railroad construction camps when they were in their glory. Mr. French either saw them all or else participated in them as the book is an account of his life as related to his son. The story is told in a simple, straight forward fashion and is bound to be of interest to the average student of railroad history. Certainly it depicts very vividly that railroading in those days was no sinecure.

THE VILLAGE AT THE END OF THE ROAD, By Wylie J. Daniels, 112 pages. $9\frac{1}{4} \times 6$, illustrated. Published by the Indiana Historical Society, Indianapolis, Indiana. Bound in paper. Price 75c.

The decade between 1845 and 1855 saw great changes in the history of Indiana. In addition to the completion of the Wabash & Erie Canal, the start of the public-school system, the adoption of a new state constitution, the use of the telegraph—the first railroads were completed.

Our story deals with the inception, construction and growth of the Madison & Indianapolis R. R. chiefly, tho' needless to say other railroads in that vicinity during that decade are not overlooked. We see the struggles of this early pioneer road, the attempts that Madison made to keep her supremacy on the Ohio River and the growth of that mid-west metropolis—Indianapolis.

The author has made a fine contribution to railroad history to a section of this country of which we have none too much. It has been most carefully prepared and to those of our members who are interested in the history of our mid-western roads, we strongly urge them to procure this interesting little work.

MEN AND IRON, By Edward Hungerford, 424 pages. $9\frac{3}{8} \times 6\frac{1}{8}$, illustrated. Published by Thomas Y. Crowell Co., 432 Fourth Ave., New York, N. Y. Bound in cloth. Price \$3.75.

Mr. Hungerford has made another valuable addition to railroad history. Commencing with the conception of the Mohawk & Hudson R. R., and followed by that chain of connecting roads across New York State to the final welding of roads that make the present New York Central System, the author has carefully traced the growth and history. By far the most important is the personal touch, for after all, the men who manage a railroad spell its success or failure. It remained for Commodore Vanderbilt to prove that a united railroad could compete successfully with the old Erie Canal and the magnificent Hudson River

steamboats. One may well ponder just what kind of a system the Commodore would have left had he been a few years younger when he entered the railroad field or been spared a few more years of activity.

Instead of a bare recital of facts, the history and growth is most interestingly told. The personal references add greatly to its interest and value and the index is of great aid to the student of railroad history. Whether the reader is a pro New York Central man or not, whether he approved of the Commodore's management or not perhaps makes little difference at this late day but the book is a fine tribute to the men who built up the New York Central System and is one to command the attention and interest of our membership.

ALONG THE IRON TRAIL, By Frederick H. Richardson and F. Nelson Blount, 206 pages, 9x6, illustrated. Published by the Tuttle Publishing Co., Rutland, Vermont. Price \$2.95.

These young authors have attempted here to trace the reasons for the railroad "fan" movement and to place in their hands something nontechnical and well illustrated. Although we regret to note the error of the Quincy Railroad which was never intended to be built to and did not reach Charlestown, and we cannot agree with the information that titles some of the illustrations and we see no reason for the inclusion of certain foreign subjects nor for the commercial announcement on the last page, we feel on the whole that both of these college students deserve to be commended for their efforts.

An Early Passenger Coach

IN BULLETIN 46, opposite page 9, we reproduced an early passenger coach with the hopes that one or more of our members would be able to recognize it. We are indebted to Mr. G. F. Starbuck for the following:

"It (the car) was built for the Cylindrical Steel Car Co., and named 'City of St. Joseph.' It was also known as B. A. Atkinson & Co.'s. Private Car. I cannot find any date, but I believe it must have been built from 1888 to 1890. B. A. Atkinson & Co., 827 Washington St., corner of Common St., Boston, were well-known house furnishers who did extensive advertising.

"I suppose that the Cylindrical Steel Car Co. saved something in the cost of the car, which they were trying to exploit, by combining with Atkinson. It, of course, must be counted as one of the very early steel cars. The inventors seem to have had the notion, which persists to this day, that there is some magic strength to a cylindrical form, wherever it can be used. You may have noted how some of the builders of recent stream-lined trains make a talking point of its approximation to circular section.

"I saw the car once as a boy, when it stood just outside the old Fitchburg Railroad stone station, on the track laid in the street between the station and the Boston & Maine tracks, which went through to Haymarket Square Station.

"The dimensions of the car were:

		Outside	Inside
Length	62' 0"	54' 0"
Height	13' 10"	8' 0"
Width	9' 10"	9' 0"

"The steel body of the car and the iron trucks were made in Boston. The beautiful interior finishing, painting, etc., was done at the Laconia Car Works, Laconia, N. H. The interior is divided as follows: Observation room at one end, side aisle passing ladies lavatory, then three sections divided by beautiful portions after which comes the finely appointed grand saloon—a very palace of an apartment, luxuriously fitted up and fit for the domicile of a prince. Then, passing along a side aisle, you entered the buffet and after that the smoking room, alongside of which was the gentleman's lavatory.

"Your picture seems to show the smoking-room end. I have a woodcut, taken from B. A. Atkinson & Co. advertisement, which shows the end windows extending down to the level of the molding midway between the bottom of the side windows and the floor level. In a crude way it gives indication of quite elaborate painting."

Certainly we are indebted to our fellow member, Mr. Starbuck, for his complete and careful description of this early passenger coach.

Negatives Added Since October 1937

A- 68 A. T. & S. F.	275	2-8-0	Taunton	1882
D- 4 Manistee & Northern	12	2-6-0		
E-234 East Jersey R. R. & Term.	12	0-6-0T	Baldwin	1920
E-235 East Jersey R. R. & Term.	14	0-6-0T	Baldwin	1925
E-236 East Jersey R. R. & Term.	15	0-6-0T	Baldwin	1927
E-237 East Jersey R. R. & Term.	16	0-6-0T	Baldwin	1928
E-238 East Jersey R. R. & Term.	10	0-6-0T	Baldwin	1913
E-239 Western Pacific	46	2-8-0	Schen.	1920
E-240 Western Pacific	111	4-6-0	Dunkirk	1909
E-241 Lehigh Valley	3431	0-6-0	Sayre Shops	1927
E-242 Alabama Great Southern	124	2-6-0		
E-243 East Jersey R. R. & Term.	11	0-6-0T	Baldwin	1916
E-244 Jamaica R. R.	22	2-6-4T	Rhode Island	
E-245 Marion R. R.	6	2-6-2		
E-246 C. R. R. of N. J.	44	0-6-0	C. R. R. N. J.	1913
E-247 C. R. R. of N. J.	159	4-6-0	Brooks	1900
E-248 C. R. R. of N. J.	170	4-6-0	Brooks	1909
E-249 C. R. R. of N. J.	227	4-6-4T	Baldwin	1923
E-250 C. R. R. of N. J.	865	2-8-2	Brooks	1920
E-251 C. R. R. of N. J.	882	2-8-2	Brooks	1922
E-252 C. R. R. of N. J.	993	2-8-2	Baldwin	1925
E-253 C. R. R. of N. J.	935	2-8-2	Baldwin	1925
E-254 Pennsylvania	253	3-4-0	Juniata	1912
E-255 Pennsylvania	435	4-4-2	Juniata	1914
E-256 Pennsylvania	679	2-8-0	Baldwin	1903
E-257 Pennsylvania	749	0-6-0	Juniata	1913
E-258 Pennsylvania	1646	4-4-2	Juniata	1914
E-259 Pennsylvania	2216	4-4-0	Juniata	1902
E-260 Pennsylvania	2545	2-8-0	Baldwin	1905
E-261 Pennsylvania	3334	4-6-2	Juniata	1911
E-262 Pennsylvania	3884	4-6-2	Juniata	1923
E-263 Pennsylvania	5016	4-4-0	Juniata	1899
E-264 Pennsylvania	3906	0-4-0	Diesel Switcher	
E-265 Pennsylvania	5023	2-8-0	Baldwin	1913
E-266 Pennsylvania	5436	4-6-2	Baldwin	1927
E-267 Pennsylvania	5477	4-6-2	Juniata	1927
E-268 Pennsylvania	6389	0-6-0	Juniata	1926
E-269 Pennsylvania	8634	4-4-2	Juniata	1909
E-270 D. L. & W.	1006	4-6-0	Schenectady	1905
E-271 D. L. & W.	1011	4-6-0	Schenectady	1905
E-272 Staten Island R. T.	16	2-4-4	Cooke	1885
E-273 Staten Island R. T.	26	4-4-0	Cooke	1906
E-274 Staten Island R. T.	14	2-4-4	Cooke	1885
E-275 Staten Island R. T.	19	2-4-4	S. T. R. T.	1906
E-276 Peachblotom		0-6-6	Mason	1876
E-277 N. Y. & M. B.	"Gravesend"	2-4-4	Mason	1881
E-278 Maryland & Delaware Seacoast	5	2-6-2		
E-279 Tidewater Southern	1	4-6-0	N. Y. Loc. Wks	
E-280 Western R. R. of N. C.	Chatham	4-4-0	Baldwin	1866
E-281 Baltimore & Ohio	600	2-6-0	B. & O.	1875
E-282 Baltimore & Ohio	368	0-6-0	Baldwin	1919
E-283 Baltimore & Ohio	217	4-6-0	Winans	1857
E-284 Baltimore & Ohio	11 Electric			1910
E-285 Rock Island	1040	4-4-2	Schen.	1909
E-286 Md. & Pa.	43	2-8-0		
E-287 Lehigh Valley	3354	0-6-0T		

	E-288 Lehigh Valley	3422	0-6-0	Baldwin	1907
	E-289 Lehigh Valley	1643	4-6-0	Alco	1906
	E-290 Lehigh Valley	759	2-8-0	Baldwin	1905
1882	E-291 Md. & Pa.	5	4-4-0	Richmond	1901
	E-292 Illinois Central	279	0-6-0	Schenectady	1915
	E-293 Illinois Central	6003	2-6-6-2	Richmond	1919
	E-294 Chicago North-Western	94	4-6-2	Schenectady	1910
1920	E-295 Chicago North-Western	1731	2-8-0	Schenectady	1910
1925	E-296 Chicago & Alton	500	4-4-0	Brooks	1899
1927	E-297 D. L. & W.	1102	4-6-2	Schenectady	1914
1928	E-298 Balt. & Ohio	2401	0-8-8-0	Alco	1911
1913	E-299 Balt. & Ohio	789	4-4-0	Pittsburgh	1889
1920	F- 35 Great Northern	1463	4-6-2	Lima	1914
1909	F- 36 Pennsylvania	"Tiger"	4-4-0	Baldwin	1856
1927	F- 37 Union Pacific	177	4-6-0	Taunton	1878
1916	F- 38 A. T. & S. F.	167	2-8-0	Pittsburgh	1881
	F- 39 Boston & Maine	101 "Maverick"	0-6-0	Rhode Isl.	1885
	F- 40 A. M. & O. R. R.	78	4-4-0	Mason	1871
1913	F- 41 American R. R. Porto Rico	8	0-6-6-0	Baldwin	
1900	F- 42 Baldwin Locomotive Works	"Delaware"	2-6-0	Baldwin	
1909	F- 44 Boston & Lowell	80 "Aeolus"	4-4-0	Rhode Isl.	1884
1923	F- 45 Boston & Lowell	82 "Keene"	4-4-0	N.Y. Loc. Wks	1884
1920	F- 46 Boston & Maine	168 "Beach Bluff"	4-4-0	Portland	1887
1922	F- 47 Boston & Maine	229 "Barrington"	4-4-0	Taunton	1868
1925	F- 48 Palmer & Machiasport	"Lion"	0-4-0	Hinkley	1843
1925	F- 49 Boston & Lowell	34 "Arlington"	4-4-0	Rhode Isl.	1871
1912	F- 50 Boston & Albany	100	4-4-0	B. & A. R. R.	1883
1914	F- 51	2 "Maj. W. R. Sterling"	0-6-0	Baldwin	
1906	F- 52 Group of four Southern type locomotives on turntable				
1913	F- 53 Atlantic Car Works, Salem, Mass.				
1914	F- 54 Boston & Albany	199	4-4-0	Eddy	1872
1905	F- 55 American Fork R. R.	"Onward"	0-4-4	Mason	1872
1911	F- 56 Train supposed to be Bangor, Oldtown and Milford				
1923	G- 9 B. R. & P. with train	195	4-6-0	Brooks	1897
1889	G- 10 Pennsylvania	296	4-4-0	Juniata	1893
1913	G- 11 Pennsylvania	1392	4-4-0	Altoona	1890
1927	G- 12 B. R. & P.	193	4-6-0	Brooks	1897
1926	G- 13 Pennsylvania	723	4-4-0	Altoona	1875
1909	G- 14 B. R. & P.	263	4-6-0	Brooks	1898
1905	G- 15 Balt. & Ohio	876	4-4-0	Baldwin	1892
1885	G- 16 Pennsylvania	6045	4-4-0	Altoona	1890
1906	G- 17 A. T. & S. F.	2 "Wm. B. Strong"	4-4-0	Atch.	1881
1885	G- 18 Belvidere & Delaware	"Assanpink"	4-4-0	Trenton	1855
1906	G- 19 Bangor & Aroostook	61	4-6-0	Manchester	1902
1876	G- 20 Alabama Great Southern	252	4-6-2	A. L. Co.	
	G- 21 Balt. & Potomac		0-6-0T	Baldwin	
	G- 22 Atlantic Coast Line	78	4-4-0	Rogers	
	G- 23	"Centennial"	0-4-0T	Baldwin	
1866	G- 24 Baltimore & Ohio	433	2-8-0	B. & O. R. R.	1880
1875	G- 25 Baltimore & Ohio	262	0-8-0	N. J. L. W.	1865
1919	G- 26 Baltimore & Ohio	1608	2-8-0	Cooke	1896
1857	G- 27 A. T. & S. F.	132	2-8-0	Baldwin	1880
1910	G- 28 A. T. & S. F.	577	0-6-0	Taunton	1887
1909	G- 29 Atlantic & Pacific	26	4-8-0	Rhode Island	1881
	G- 30 Boston & Albany	55 "Oregon"	4-4-0	Eddy	1873
	G- 31 A. T. & S. F.	1301	4-4-6-2	Baldwin	1909
		1700	2-8-8-2	Baldwin	1909

G- 32 Bells Gap R. R.
 G- 33 Allegheny Central Ry.
 G- 34 Blairstown Ry

3 "Coalport"
 "Clarion"
 2 "John D. Vail"

2-8-0 Richmond
 2-4-0 Grant
 4-4-0 Cooke

A = $3\frac{3}{4} \times 4\frac{1}{4}$ 10c
 D = 4×5 12c
 E = $3\frac{3}{4} \times 5\frac{1}{2}$ 10c

F = 5×7 25c
 G = $6\frac{1}{2} \times 8\frac{1}{2}$ 35c

There are still some prints on eastern and mid-west subjects remaining from those outlined in Bulletin No. 46. All orders should be addressed to Mr. Harold S. Walker, Ass't. Secretary, P. O. Box No. 74, Swampscott, Mass.

In Memory of

FRANCIS E. APPLETON

49 Warwick Street,
Lowell, Massachusetts
Who Died on June 18, 1938

W. D. BOWMAN

1033 East 61st Street,
Chicago, Illinois
Who Died on May 28, 1938

R. D. HEUSNER

Oak Lane Valley Manor Road
Oak Lane Station, Pennsylvania
Who Died on July 5, 1938

LESTER M. JONES

708 Union Station
Chicago, Illinois
Who Died on March 30, 1938

NEWELL M. MARTIN

4 Lincolnshire Way
Winchester, Massachusetts
Who Died on May 13, 1938

HON. ANDREW J. PETERS

1 Federal Street
Boston, Massachusetts
Who Died on June 26, 1938

